Exploring the Motivations Underlying the Use of Paralinguistic Digital Affordances on Facebook

By

Linda Fish

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Statement of Sources

I declare that this report is my own original work and that contributions of others have been duly acknowledged.

Signed:

Date:

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Table of Contents

List of Tables

List of Figures

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Abstract

Paralinguistic digital affordances (PDAs) are the most commonly used feature on SNS. However, relativity little is known about the factors that influence their use. The current study aimed to further investigate the use of PDAs on Facebook, by considering how social capital and the positivity bias influence the use of PDAs. and examine the effect of narcissism subtypes on motivations to use PDAs. It was hypothesised that more PDA responses would be given to both positive images and strong ties. It was also hypothesised that grandiose narcissism would positivity predict motivations to use PDAs as assertive self-presentation tactics; that vulnerable narcissism would positivity predict motivations to use PDAs as both assertive and defensive self-presentation tactics and that vulnerable narcissism would predict positivity predict the motivation to consider consequences and other user's emotion prior to using PDAs. Facebook users (N = 136) responded to fictitious Facebook posts (in a 3 x 2 design, with positive, neutral and negative images purportedly posted by strong and weak social ties) and measures of narcissism and PDA motivations. Results were that the positivity bias is not only present in the content posted on Facebook, but also in PDA response. Individuals were just a likely to respond to close and weak ties for positive images but were less likely to respond to negative valanced images when posted by a weak tie. Analysis via multiple regression indicated that both grandiose and vulnerable narcissism predicted the motivations to use PDAs as assertive and defensive self-presentation tactics. The findings offer theoretical contributions to the fluctuation hypothesis and spectrum model of narcissism, providing a potential avenue for future research. It can be concluded that the simple act of creating a PDA on Facebook has surreptitiously complex motivational bias.

Social networking sites (SNS), such as Facebook, have become a highly ingrained feature of daily online interactions (Marder, Joinson, Shankar, & Thirlaway, 2016). Facebook is currently the world's largest SNS with a total of 1.45 billion daily active users facilitating computer-mediated interaction through the posting and 'liking' of user-based content (Facebook, 2018; Lowe-Calverley & Grieve, 2018). The act of 'liking' is considered a paralinguistic digital affordance (PDA). PDAs can help users gain a sense of belonging, social support (Carr, Wohn, & Hayes, 2016; Hayes, Carr, & Wohn, 2016b) and allow self-presentation (Ozanne, Cueva Navas, Mattila, & Van Hoof, 2017) online. Since the launch of Facebook Reactions, PDAs on Facebook now offer users a more complex tool for belongingness and self-presentation, allowing users to react with pre-defined emotions (Krug, 2016).

Considerable research exists on the behavioural manifestation of personality in offline contexts. However, few studies have investigated the behavioural markers of personality in the context of online interactions (Saef, Woo, Carpenter, & Tay, 2018). Previous research has examined the role of interpersonal generosity, public self-consciousness and empathy on the use of PDAs (Hong, Chen, & Li, 2017). However, the individual difference of narcissism has not yet been applied to PDAs. This is surprising, given strong associations between narcissism and the use of strategic self-presentation tactics (Carpenter, 2012). Additionally, to date, few studies have investigated the updated Facebook Reactions feature. The aim of this research was to further investigate the use of PDAs on Facebook, by considering how social capital and positivity bias influence PDA use, and whether the two faces of narcissism motivate the use of PDAs on Facebook.

Psychological Needs Underpinning Facebook and PDAs

Facebook use is motivated by two basic yet fundamental social needs; the need to belong and the need for self-presentation (Nadkarni & Hofmann, 2012). According to belongingness theory, individuals are motivated to develop and maintain interpersonal relationships in order to experience a sense of belongingness and enhance their wellbeing (Baumeister & Leary, 1995). Grieve, Indian, Witteveen, Tolan, and Marrington (2013) identified that feelings of social connectedness can be derived from Facebook, thereby meeting belongingness needs. Further, Utz (2015) found that relationship maintenance was the primary motive for using SNS.

Central to belongingness is social capital. Social capital refers to the amount of psychological distance present in interpersonal relationships (McEwan, Sumner, Eden, & Fletcher, 2018). Bonding capital typically comprises of close family members and friends, while bridging capital is formed by relationships with less psychological investment such as acquaintances and work colleagues (McEwan et al., 2018). Facebook provides an ideal platform for bonding with strong ties and bridging with weak ties by enabling people to connect with each other online (Rozzell et al., 2014). Communication on Facebook that is effortful and initiated by strong ties is perceived as providing a greater sense of belonging than communication initiated by weak ties (Burke & Kraut, 2016; Rozzell et al., 2014).

The psychological need to belong extends to the use of PDAs. Activated by a single click, PDAs are central to the social role of users in the Facebook community (Ozanne et al., 2017). Carr et al. (2016) conducted a qualitative study which revealed that ‘likes’ are perceived as more supportive and deliberate when provided by strong, rather than weak ties. This was irrespective of the fact that all of the Likes utilised the same ‘like’ cue (Carr et al., 2016). In a recent study, Sumner, Ruge-Jones, and Alcorn (2018) examined participants’ Facebook activity log to investigate the

intentions that participant's aimed to communicate with each PDA. Of the sample, 46% reported that their PDA responses were intended to serve as a function of relational maintenance, with individuals reporting that they were more likely to give PDAs to content posted by close ties, such as close family and friends. Moreover, PDAs are an effective way to facilitate the growth and maintenance of social ties (McEwan et al., 2018; Sumner et al., 2018). Moreover, PDAs are an effective way to facilitate the growth and maintenance of social ties (McEwan et al., 2018; Sumner et al., 2018).

In addition to providing a platform that can help fulfil belongingness needs, Facebook also enables individuals to engage in self-presentation (Hayes et al., 2016b; Nadkarni & Hofmann, 2012; Ozanne et al., 2017. The need for self-presentation is reflected in the theory of impression management where individuals engage in goal-directed behaviour to influence and control the impressions that others may form of them (Leary & Kowalski, 1990). The two-component model proposed by Leary and Kowalski (1990) argues that impression motivation and impression construction form the underlying sub-processes of impression management. Impression motivation is enhanced when individuals believe the desired impression will help achieve important goals (Leary & Kowalski, 1990), such as portraying an identity online (Carpenter, 2012).

PDAs are a tool for non-verbal self-presentation on Facebook. The asynchronous nature of PDAs allows for greater consideration and articulation of self-presentation (Ellison, Heino, & Gibbs, 2006; Proudfoot, Wilson, Valacich, & Byrd, 2017). Congruent with Impression Management theory (Leary & Kowalski, 1990), the act of liking requires impression motivation to convey a desired impression to others and impression construction to fulfil the behavioural component

of ‘liking’. The public nature of PDAs increases users awareness to potential consequences on both themselves and the poster that may be associated with liking a post (Lowe-Calverley & Grieve, 2018).

Online Self-Presentation and the Positivity Bias

Individuals are motivated to maintain positive self-presentation online by portraying positive impressions and upholding social norms. This phenomenon is known in SNS research as the positivity bias (Spottswood & Hancock, 2016). Utz (2011) found that posts uploaded to Facebook are predominately positive, with users posting about experiences such as holidays and accomplishments. This is despite a self-serving bias where users reported that their friends were more likely to present themselves favourably on Facebook, but claimed not to engage in these impression management tactics themselves. The positivity bias is a product of social norms (Spottswood & Hancock, 2016). Consequently, the type of content that users are regularly exposed to influences users perceptions of whether it is appropriate to respond (Utz, 2015). Moreover, giving PDAs that do not align with these social norms could be perceived as inappropriate by other users (Ziegele & Reinecke, 2017).

Self-Presentation Tactics Online: A Case to Explore PDAs

Self-presentation tactics are distinguished according to whether underlying motivations seek to assert desired self-images or to defend against threats towards one’s self-image (Hart, Adams, Burton, & Tortoriello, 2017; Lee, Quigley, Nesler, Corbett, & Tedeschi, 1999). Lee et al. (1999) identified 12 regularly adopted offline self-presentation tactics: assertive self-presentation tactics include acts of enhancement, entitlement, exemplification, blasting, ingratiation, intimidation and

supplication. Defensive self-presentation tactics, on the other hand, include excuses, justifications, disclaimers, self-handicapping and apologies (Lee et al., 1999).

In regards to the choice of assertive versus defensive tactics, the assumption underlying self-presentation models is that individuals adopt specific self-presentation tactics that are consistent with their self-concept and desired identity (Leary & Kowalski, 1990). Previous research has found that offline identity often transfers to the online environment. Specifically, individuals are motivated to portray an online identity that is as close as possible to their true self in order to minimise intrapersonal conflict (Grieve & Watkinson, 2016)

Premised on the notion that offline self-presentation transfers to the online environment, researchers attempted to validate the 12 self-presentation tactics identified by Lee et al. (1999) online. Rosenberg (2009) developed a modified version online self-presentation tactic scale to assess self-presentation on Facebook. Rosenberg (2009) conducted an exploratory factor analysis on Lee et al.'s (1999) Self-presentation tactic scale. A four-factor solution emerged rather than a two-factor solution as previously identified by Lee et al. (1999). The first factor related to manipulation, the second factor represented damage control, the third factor was self-promotion and the final factor was role-model.

However, Rosenberg's (2009) examination of the transference of self-presentation tactics online investigated overall self-presentation on the platform, rather than the use of PDAs as a form of self-presentation. Further, taking into account attention to consequences of PDAs and consideration of the emotions people might experience on receipt of a PDA, would provide additional insight into the self-presentation facilitated by PDAs. For example, clicking 'like' suggests that an individual is attempting to influence, either consciously or subconsciously,

perceptions that others may form of them (Ozanne et al., 2017). PDAs are seemingly simple 'one click cues', however they are thought to convey fragments of an individual's identity, and the presence of an online audience may increase the motivation to consider the risks and consequences associated with their use as well as the emotional influence that a PDA may have on another user.

Narcissism Subtypes and Self-Presentation

Given the recent emergence of PDAs in the literature, few studies have investigated the behavioural manifestations of personality in the context of online interaction and motivations of PDA use. To date, the investigation of PDA use and personality is centred around the traits of interpersonal generosity, empathy and public self-consciousness (Hong et al., 2017). Hong et al. (2017) examined Facebook Likes as a form of online gift-exchange. The results of a regression analysis found that interpersonal generosity and public self-consciousness were significant predictors of the frequency of giving likes. However, empathy was not a significant predictor of 'liking' frequency. Hong et al.'s (2017) study focused on the prosocial traits associated with PDA use, however further investigation is warranted to examine other personality domains (Saef et al., 2018) and extend our understanding of PDAs to darker personality traits.

The individual difference of narcissism has not yet been applied to the motivations of PDA use. This is surprising, given strong associations between narcissism and the use of strategic self-presentation online (Carpenter, 2012; Gnambs & Appel, 2018; Hall & Pennington, 2013), which may in turn transfer to specific features such as PDAs. Narcissism forms one of the distinct, yet related, components of the Dark Triad (Paulhus & Williams, 2002) sharing commonalities of self-promotion, emotional coldness and aggressiveness with Machiavellianism and

psychopathy (Rogoza & Cieciuch, 2018). Broadly, narcissism refers to a personality trait characterised by the heightened preoccupation with self, inflated self-concept and need for admiration (Wink, 1991).

Narcissism was originally conceptualised as a uni-dimensional construct (Raskin & Hall, 1979). However, research now distinguishes between two faces of narcissism; grandiose and vulnerable narcissism (Wink, 1991). Both grandiose and vulnerable narcissists aim to fulfil the underlying need for admiration by engaging in the heightened use of self-presentation tactics (Carpenter, 2012). Existing literature has identified that grandiose and vulnerable narcissists approach self-presentation differently. For example, Hart, Adams, Burton and Tortoriello (2017) profiled grandiose and vulnerable narcissists based on their use of self-presentation tactics. It was found that grandiose narcissism was associated with assertive self-presentation tactics while vulnerable narcissism was associated with both defensive and assertive self-presentation tactics.

Grandiose narcissists are extroverted, socially competent and self-assured, (Hart et al., 2017; Wink, 1991). Grandiose narcissism is positively related to the approach motivation system which promotes movement towards desired sates (Foster & Trimm, 2008). In a qualitative study, Besser and Priel (2010) induced imaginary high-low level conditions of interpersonal and achievement failure threats. It was found that grandiose narcissism is associated with greater responsiveness to achievement setbacks and inversely associated with interpersonal threat. Hart et al. (2017) propose that in situations of image threat, such as when an individual's identity is in question, grandiose narcissists may not experience enhanced impression motivation as they are negatively related to emotions, such as anxiety and vulnerability, which alert the presence of potential image threat. Further, Besser and

Priel (2010) suggest that negative interpersonal feedback from others can be blunted with the tendency to attribute such feedback to the negative attributes of others.

In line with these findings, grandiose narcissists may perceive PDAs as an opportunity to cultivate their identity online. Consequently, enhancing impression motivation and the intention to use PDAs as assertive self-presentation tactics. According to theoretical conceptualisations (Hart et al., 2017), grandiose narcissism may be less motivated to use defensive self-presentation tactics because of the indifference to image threat. Moreover, grandiose narcissists may also be less motivated to consider the consequences associated with PDAs and unlikely to consider other's emotions before using PDAs.

Vulnerable narcissism, or covert narcissism, is characterised by introversion, defensiveness, anxiety (Casale & Fioravanti, 2018; Wink, 1991), high shame proneness and insecurity (Besser & Priel, 2010). Consistent with grandiose narcissism, vulnerable narcissists also possess chronic goals of obtaining social power and enhanced self-esteem (Hart et al., 2017). However, while the two faces of narcissism share similar overarching goals, vulnerable narcissists lack the ability and confidence to assert their desired self-image convincingly (Hart et al., 2017). Vulnerable instead often rely on external feedback from others to manage self-esteem and validate their identity (Besser & Priel, 2010).

Unlike grandiose narcissists, vulnerable narcissists are highly responsive to interpersonal setbacks (Besser & Priel, 2010). Vulnerable narcissists are motivated to relieve negative emotions associated with real or imagined threats to their self-image, by engaging in remedial self-presentation tactics such as excuses and justifications. Hart et al. (2018) proposed that vulnerable narcissists may have a greater motivation to engage in defensive tactics during situations of image threat in

order to protect their identity. Additionally, vulnerable narcissists motivation to engage in assertive tactics may be greater in situations that do not involve an immediate threat to their identity but offer opportunities for image cultivation.

In an online context, Ozanne et al. (2017) found that PDAs can be used as a self-protective tool to show information about the self while minimising possible consequences that may be associated with a more direct response such as commenting. In a similar study, deceptive like seeking, or the extent to which individuals engage in behaviours to increase the number of individuals who will click the like button in return (Dumas, Maxwell-Smith, Davis, & Giulietti, 2017; Scissors, Burke, & Wengrovitz, 2016), demonstrates use of PDAs for both assertive and defensive tactics. Thus, conceptually vulnerable narcissists may be motivated to use PDAs as both assertive and defensive self-tactics during online communication. Furthermore, vulnerable narcissists may be motivated to consider both potential consequences with PDA use and the emotions of others before using PDAs in order to both assert and defend their identity and fragile self-esteem.

The Current Study

In summary, the need to belong and the need for self-presentation form the underlying motivations of Facebook (Nadkarni & Hofmann, 2012) and extend to the motivations around the use of PDAs (Carr et al., 2016; Ozanne et al., 2017). In recent years, Facebook has transitioned from a predominantly verbal platform to a non-verbal channel of communication. To exemplify, images now exceed the proportion of status updates and are now a key communicative function (eg., Lowe-Calverley & Grieve, 2018). This transition allows users to express pictorial representations of online emotional discourses such as love and achievement.

Despite PDAs being the most commonly used Facebook feature, little is known about how individual differences influence their use, and little is known about the motivations underlying narcissism and use of PDAs. Saef et al. (2018) argued that teasing apart personality factors into lower-level traits can provide a more nuanced understanding of personality and the influence on human behaviour. Adopting this approach may help to explain unique predictive variance in PDAs that may be diluted at the general construct level, as well as provide conceptual clarity for grandiose and vulnerable narcissism in online settings. This study delineated and explored, for the first time, whether grandiose narcissism and vulnerable narcissism predict the motivation to use of Facebook Reactions for assertive and defensive self-presentation on Facebook. Additionally, motivations to anticipate potential consequences and emotional responses associated with PDA use was also considered.

Aims and hypotheses

The broad aim of this research was to further investigate the use of PDAs on Facebook, by considering how social capital and the positivity bias influence PDA use, and whether the two faces of narcissism motivate the use of PDAs on Facebook. Firstly, the positivity bias that is evident in Facebook post content (Spottswood & Hancock, 2016; Utz, 2015) indicates that positively valenced images should be evaluated as most appropriate, therefore it was hypothesised that (1) more PDA responses would be given to positive images than to neutral or negative images. Secondly, as PDA use can vary as a function of relational closeness (Hayes, Carr, & Wohn, 2016b), it was also hypothesised that (2) more PDA responses would be given to strong, rather than weak ties.

Individuals with social anxiety report greater preference for online social interactions Facebook allows these populations to compensate for a lack of social skills (Grieve et al., 2013). For completeness, the complexity of online interactions was acknowledged by briefly identifying if there was an effect of social anxiety, depression, anxiety, and stress on PDA responses, as these are factors that may influence the use of PDAs in the stimulus response task and on Facebook generally

Premised on the notion that offline self-presentation readily transfers to online self-presentation, it follows that assertive and defensive self-presentation tactics may also be present in specific Facebook features such as PDAs. Building upon previous research establishing differences in the underlying motivations of self-presentation tactics, (Hart et al., 2017), It was hypothesised that after controlling for age, gender, empathetic concern, perspective taking, self-monitoring, Machiavellianism, and psychopathy, that grandiose narcissism and vulnerable narcissism would explain a significant proportion of the variance in the motivations underpinning the use of PDAs for self-presentation purposes on Facebook.

Specifically, within the models, it was hypothesised that the inclusion of narcissism would contribute to the prediction of PDA use beyond that explained by the control variables, such that (1) grandiose narcissism would positively predict motivations to use PDAs as assertive self-presentation tactics; that (2) vulnerable narcissism would positively predict motivations to use PDAs as defensive self-presentation tactics; that (3) grandiose narcissism would negatively predict attention to the consequences of PDA use, while vulnerable narcissism would positivity predict attention to consequences; and that (4) vulnerable narcissism positively predict emotional consideration before giving PDAs responses. In order to test the hypothesis that more PDA responses would be given to strong, rather than weak ties,

a pilot study was conducted to select ecologically valid images for a stimulus response task.

Pilot Study Method

Participants. Current Facebook users (24 females, 8 males) ranging in age from 18 to 37 years (M = 21.25, SD = 3.89) were recruited from the University of Tasmania and the general community. On average, participants had been a Facebook user for 7.23 years (SD = 2.11) and reported spending 31-60 minutes on the platform per day, indicating that these Facebook users would be appropriately familiar with the platform.

Design and Analytic approach. A repeated measures design was used. The independent variable was image type (positive, neutral and negative), which were presented randomly to eliminate order effects. The dependent variable was perceptions of image valence. Analysis was via repeated measures ANOVA, with G-power calculations determining that a minimum of 31 participants were required to detect a medium effect ($\eta_p^2 = 0.17$) at alpha level .05 (Erdfelder, Faul, Buchner, & Lang, 2009).

Materials

Stimuli selection. Thirty images (10 positive, 10 neutral, 10 negative) were selected using the 'explore' function on another social media site (Instagram) to reduce the likelihood that participants would be familiar with the images. The search procedure used hashtags (e.g. '#sad' for negative, '#happy' for positive and '#nature' for neutral). Inclusion criteria were that the images were viewable from an unverified public profile, and explicitly listed a place of residence that was not in Australia or New Zealand. This ensured that the images were not posted by a public

figure, celebrity or global brand, further limiting the chance of prior exposure to the images. Sample images are presented in Figure 1.

Valence ratings. Participants were asked to rate the valence of the images using a slider scale. Possible values were 0-100, with "negative" and "positive" used as anchors, such that more positive valence perceptions resulted in a higher score. Each slider was initially set in the middle of the scale to avoid influencing participants' responses (Chyung, Roberts, & Ieva, 2017).

Figure 1. From left to right: Examples of a positive, neutral and negative image which met the stimuli inclusion criteria.

Procedure. Ethics approval was granted by the University of Tasmania's Human Research Ethics Committee (Reference number H0017375) (see Appendix A1 for approval letter). The pilot study was then advertised via SONA which directed interested individuals to the online survey hosted on SurveyMonkey. Participants gave informed consent (see Appendix A2) and completed the measures.

Pilot Study Results

Mauchley's test revealed the assumption of sphericity was met. A one-way repeated measures analysis of variance (ANOVA) was conducted, and effect sizes were significant, $F(2,62) = 150.74$, $p < .001$, $\eta_p^2 = .83$. Pairwise comparisons revealed that positive images ($M = 83.61$, $SD = 11.08$) were rated as significantly more positive than neutral images ($M = 62.03$, $SD = 11.80$), and that negative images were rated as significantly more negative than neutral images ($M = 30.21$, $SD = 13.08$). Thus, the images chosen by the researchers were consistent with participants' perceptions of valence.

From the initial 30 images, a subset of 12 images (4 positive, 4 neutral, 4 negative, see Appendix A3) were selected as stimuli for the main study by examining the mean valence ratings of each image, to ensure that the best exemplars were used in the main study. To confirm their appropriateness, another ANOVA was conducted on valence ratings in the image subset. The ANOVA was statistically significant, $F(2,62) = 201.98$, $p < .001$, $\eta_p^2 = .867$. Pairwise comparisons revealed that positive images received significantly higher ratings of valence than neutral and negative images, see Figure 2. Thus, these 12 images were used for the main study stimuli.

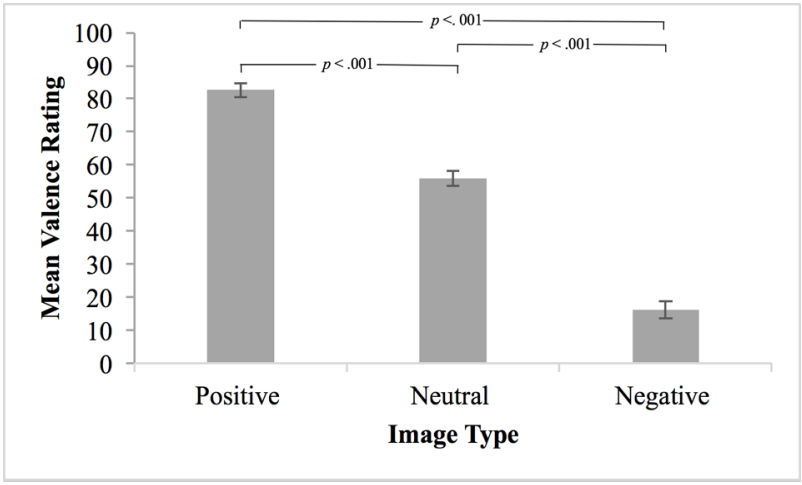

Figure 2. Pairwise Comparisons of final positive, neutral and negative images and standard error bars. Higher scores indicate more positive valence ratings.

Main Study Method

Participants. The main study was completed by 136 participants from the University of Tasmania and the general population (113 females, 23 males) between 18 -78 years of age (M = 26.51 years, SD = 12.32 years). Selection criteria required participants to be adult Facebook users that had not taken part in the pilot study.

Design and Analysis. A cross-sectional within subjects' design was used. The repeated measures design reduced error variance allowing greater sensitivity to experimental manipulations compared to a between-subjects design (Keselman, Algina, & Kowalchuk, 2001).

PDA use. The dependent variable was number of PDAs given to each image, which was assessed as a function of social capital (with 2 levels: strong vs. weak ties) and image valence (with 3 levels: positive, neutral, negative). Presentation of stimuli was semi-counterbalanced by creating four versions, such that each positive, neutral and negative stimulus appeared twice with a strong tie and twice with a weak

tie. Presentation of the images was randomised within each version. Analysis was via a 3 x 2 repeated measures ANOVA.

PDA motivations. Hierarchical multiple regressions were used, to allow for control variables to be considered. The outcome variables were: assertive self-presentation tactics for PDA use, defensive self-presentation tactics for PDA use, attention to consequences of PDA use, and emotional consideration of PDA use. The predictor variables were grandiose narcissism and vulnerable narcissism.

Control variables for PDA use motivations. Age differences have been observed in narcissism with evidence suggesting that the levels of nonclinical narcissism have increased over the past generations (Twenge, Konrath, Foster, Campbell, & Bushman, 2008). Gender differences in self-presentation have also been noted, with males more likely to adopt assertive self-presentation than females (Lee et al., 1999). Like narcissism, high self-monitoring is also associated with strategic self-presentation online (Hall & Pennington, 2013). Differences in narcissism and self-presentation were accounted for by entering age, gender and self-monitoring as control variables. Additionally, the empathic capacity of narcissists has been found to vary depending on motivational and situational factors (Baskin-Sommers, Krusemark, & Ronningstam, 2015), therefore fluctuations in empathic functioning were also entered as a control variable. Finally, in accordance with Furnham, Richards, and Paulhus (2013), Machiavellianism and psychopathy were included in the analysis to control for core narcissism within the dark triad of personality.

A priori power analysis. In accordance (Green, 1991), the number of participants required for a multiple regression is $104 + k$ (k = the number of predictor variables). The present study included 10 predictor variables (age, gender,

empathetic concern, perspective taking, sensitivity to the expressive behaviours of others, ability to modify self-presentation, Machiavellianism, psychopathy, grandiose narcissism and vulnerable narcissism. Therefore, the number of participants needed to detect a medium effect size was 114 (f^2= *.15,* alpha = .05 and power = .8). The total number of participants who took part in the study exceeded the minimum number of participants required. The analysis of valence and social capital was conducted using a 3x2 repeated measures ANOVA, G-power calculations determining that a minimum of 67 participants were required to detect a medium effect ($\eta_p^2 = 0.17$) at alpha level .05 (Erdfelder et al., 2009).

Materials

Full versions of all measures and stimuli are presented in Appendices B1-B7.

Demographics. Demographic information (age, gender) was obtained. Participants also reported information on their patterns of Facebook use and the size of their Facebook networks.

Grandiose narcissism. Grandiose narcissism was measured using the 9-item narcissism subscale of the Short Dark Triad (SD3; Jones & Paulhus, 2014). The SD3 is a 27-item scale measuring three traits: narcissism, Machiavellianism and psychopathy. Participants rate their level of agreement with each statement on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly* agree, with higher subscale scores indicating higher levels of each trait. Example items include "*People see me as a natural leader"* (narcissism), "*I like to use clever manipulation to get my way"* (Machiavellianism) and "*People who mess me with always regret it"* (psychopathy). In the current study, items measuring Machiavellianism and psychopathy were used as control variables (Furnham et al., 2013). The SD3 demonstrates acceptable to good internal consistency for each subscale (narcissism α

= .80, Machiavellianism α = .77, Psychopathy α = .73) (March, Grieve, Marrington, & Jonason, 2017).

Vulnerable narcissism. Vulnerable narcissism was measured using the Contingent Self-Esteem, Hiding the Self and Devaluing subscales from the Pathological Narcissism Inventory (PNI; Pincus et al., 2009). Responses were made on a 6-point Likert scale ranging from 0 (*not at all like me)* to 5 (*very much like me).* Sample items are "*I need others to acknowledge me"* (Contingent Self-Esteem), "*Its hard to show others the weakness I feel inside"* (Hiding the Self) and "*When others disappointment me, I often get angry at myself"* (Devaluing). The PNI displays good criterion validity (Thomas, Wright, Lukowitsky, Donnellan, & Hopwood, 2012) and excellent internal consistency demonstrating Cronbach's α of .94 for Contingent Self-Esteem and good internal consistency for Hiding the Self (α = .81) and Devaluing (α = .89) (Schoenleber, Roche, Wetzel, Pincus, & Roberts, 2015).

Self-monitoring. Self-monitoring was measured using the 13-item Revised Self-Monitoring Scale (Lennox & Wolfe, 1984). The scale assesses the two domains of self-monitoring: ability to modify self-presentation (for example, "*Once I know what the situation calls for, it's easy for me to regulate my actions*") and sensitivity to expressive behaviour of others (*"I am often able to read people's true emotions correctly through their eyes"*). Participants respond to each statement by indicating their agreement on a 6-point Likert scale from 0 (*certainly always false)* to 5 (*certainly always true)*. Scores on both subscales are summed to obtain the total score. Higher scores indicate higher levels of each dimension. The Revised Self-Monitoring Scale demonstrates high internal consistency illustrated by a Cronbach's α of .87 (Rosenberg & Egbert, 2011).

Empathy. Empathy was measured using the Empathetic Concern (affective empathy) and Perspective Taking (cognitive empathy) subscales of the

personal Reactivity Index (IRI; Davis, 1983), each comprising 7 items. Items are scored on a 5-point Likert scale from 0 (*does not describe me well*) to 4 (*describes me very well*). Sample items are "*I am quite often touched by the things that I see happen*" (Empathetic Concern) and "*When I'm upset at someone, I try to put myself in their shoes for a while*" (Perspective Taking). The subscales have good internal consistency, with Cronbach's alpha values of .72 (Empathetic Concern) and .80 (Perspective Taking) (Chrysikou & Thompson, 2016). Higher scores on each subscale represent higher levels of empathy.

Assertive and defensive self-presentation items. In the measurement of self-presentation items were developed to capture both assertive and defensive self-presentation tactics. The Self-Presentation Tactics Scale (Lee et al., 1999) and Online Self-Presentation Tactic Scale (Rosenberg, 2009) were used to help formulate the new items in the context of PDAs. For example, from the items *"When I want something, I try to look good""* (from Lee et al.) and "*I compliment people on Facebook to get them on my side"* (Rosenberg, 2009) were integrated and adapted to *"I give likes/reactions on Facebook in order to actively promote myself"* (assertive PDA tactics). Similarly, "Anxiety interferes with my performances" (Lee et al.) and "*Anxiety interferences with my performances on Facebook*"(Rosenberg) were used to inform items such as "*I worry about what others think of me when I give likes/reactions"* in order to capture the anxiety and vulnerability associated with defensive self-presentation tactics. A total of 6 items were developed, 3 items measured assertive tactics and 3 items measured defensive tactics. Responses were

made on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*. Items were summed, with higher subscale scores representing a greater presence of assertive and defensive use of PDAs as self-presentation tactics.

Attention to consequences. Perceived consequences of using PDAs were measured using items based on Lowe-Calverley and Grieve's (2018) thematic analysis of 'liking' behaviour, where participants had reported awareness of audience and reputational concerns. Responses were made on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*. Sample items include *"Before giving a like/reaction to a post on Facebook, I consider the consequences that the like/reaction may have on the person who posted it"* and *"Before giving a like/reaction to a post on Facebook, I consider the consequences that the like/reaction may have on my own reputation"*. Items were summed, with higher scores indicating a greater consideration of consequences associated with PDAs.

Emotional consideration. Emotional consideration was measured with a single item, *"Before giving a like/reaction to a post on Facebook, I consider how my like/reaction will make the person posted it feel"*. This item intended to capture the empathetic nature of PDAs online in online social interactions (Carr et al., 2016) . Responses were made on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree*.

Stimulus Response Task. To examine participants', use of PDAs, a stimulus response task was developed (see Figure 3). The 12 images (4 positive, 4 neutral, 4 negative) selected from the pilot study were inserted into a blank Facebook newsfeed template to create 12 fictitious Facebook posts. It was also important to also remove any extraneous information that may influence PDA responses. Recent research has shown that the quantity of likes and reactions that a post has already received, as

well as the time, date and location of a post, are factors that may influence the motivation of clicking 'like' (Chin, Lu, & Wu, 2015). Therefore, these factors were omitted from the stimuli.

Each stimuli image was paired with either a strong or weak tie instructional experimental manipulation. To further enhance the ecological validity of the study, rather than defining close and weak ties (e.g., close friend, casual acquaintance), participants were instead presented with a general statement to ensure participants made a personal interpretation of relationship quality (Ellison, Steinfield, & Lampe, 2011). For example, bonding capital (strong ties) were captured using the statement '*Imagine a person who is a Facebook 'friend', who you know really well, makes this post on Facebook'*. Bridging capital (weak ties) were captured by substituting '*who you know really well'* with '*who you don't know well'*.

Participants were then asked to respond to the post by clicking one of the six Facebook reaction options (like, love, haha, wow, sad, angry), or could elect to provide no response.

A manipulation check was then presented, to ensure that the instruction regarding tie-strength had been observed. Participants were asked to indicate how close they felt to the imagined person: "*Thinking of your relationship with the person you imagined who posted this on Facebook, how close do you feel to them?*". This was assessed on a 100-point slider scale, where 0 and 100 represented "not at all close" and "extremely close", respectively. A second manipulation check asked participants to rate the valence of the image, per the approach used in the pilot study, to confirm that participants were perceiving the images as positive, neutral, and negative.

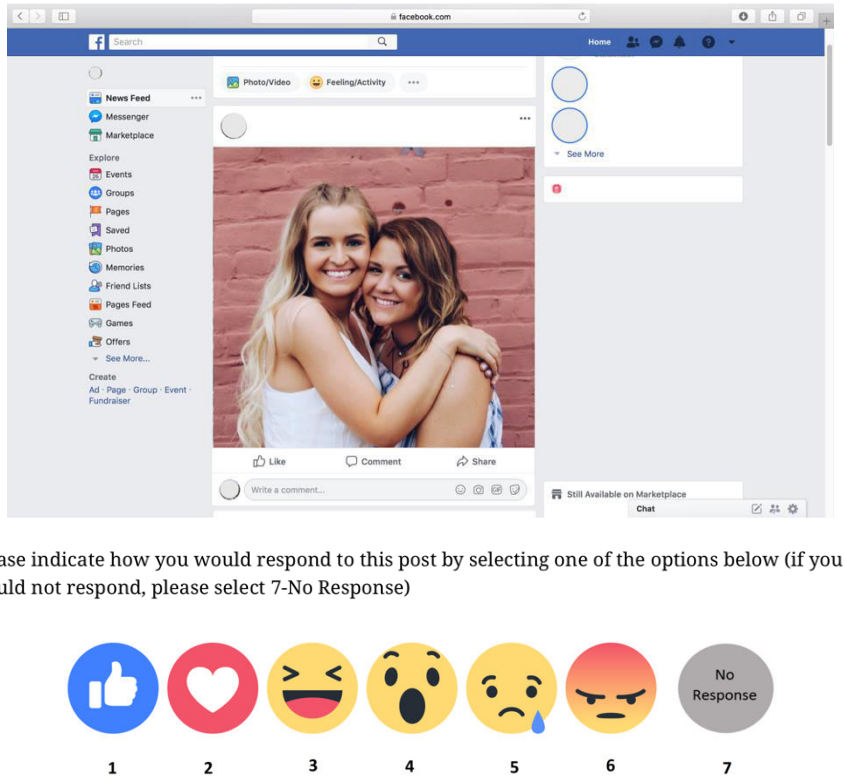

Figure 3. Example of fictitious Facebook post developed for stimulus response task.

Procedure

Ethics approval was granted by the University of Tasmania's Human Research Ethics Committee (Reference number H0017375) (see Appendix A1). Participants were recruited via notice boards around the university campus, on Facebook, announcements in psychology lectures, and on SONA the research participation website (see Appendices C1 to C3). Participants were invited to take part in research examining the influence of personality on the use of Facebook reactions. A secure link was provided to access the study on SurveyMonkey. After participants viewed the information sheet and provided consent online (see Appendices C4), they were directed to the survey's landing webpage and randomly assigned to one of the four versions. On completion of the questionnaire, participants

were thanked for their time, and were given the opportunity to either enter the draw to win one of six $50 gift vouchers or receive research participation credit (first-year psychology students). All responses were made anonymously, and participants took on average 66.42 minutes (*SD* = 70.54 minutes) to complete the questionnaire.

Results

Participants had been Facebook users for a mean of 7.67 years (*SD* = 2.26 years). On average, participants reported a mean of 528.50 Facebook friends (*SD* = 543). 'Actual' friends represented 31.1% of participants' total friends (*M* = 164.37, *SD* = 260.46). The proportion is slightly larger compared Ellison et al. (2011) who found that 25% of participants' friends were considered 'actual' friends. Participants' reported spending around 10-60 minutes on Facebook per day (see Table 1), which is consistent with the daily average Facebook use reported in previous research (Grieve & Kemp, 2015).

Examination of participants' PDA responses in the stimulus response task revealed that the most frequently used Facebook Reaction was 'like' followed by 'love' (see Table 2). Participants' use of Facebook Reactions aligns with findings of Tian, Galery, Dulcinati, Molimpakis, and Sun (2017), which found that 'like' was the most frequently used PDA. The descriptive statistics obtained reveal that the participants in this sample are a reliable sample to derive information regarding SNS behaviour.

Table 1. *Average Time Spent on Facebook Per Day*

Time	Percentage of sample
Less than 10 minutes	8.8
10-30 minutes	25.7
31-60 minutes	25.7
1-2 hours	16.9
2- 3 hours	12.5
More than 3 hours	10.3

Table 2. *Proportion of Facebook Reactions According to Image Type*

	Image Type		
Reaction	Positive (%)	Neutral (%)	Negative (%)
Like	45.2	44.1	2.4
Love	28.3	7.9	6.4
Haha	1.5	0.7	0
wow	1.7	3.1	2.0
Sad	0.2	0.2	24.8
Angry	0.2	0	0.4
No Response	23	43.9	64

Data Screening and Assumptions Testing

Casewise diagnostics identified two consistent outliers. The analyses were conducted excluding the outliers and they were found to be influential cases. Therefore, following the recommendations of Tabachnick and Fidell (2012), the cases were removed from the dataset. On conducting the second analysis, casewise diagnostics revealed the presence of another potential outlier. The analyses were run excluding the outlier, and it was found not to be an influential case. Therefore, it was retained for analysis.

Histograms indicated that the variables were approximately normally distributed. Inspection of the probability plots in the regression model suggested normality in all variables. Bivariate scatterplots indicated linear relationships for all outcome and predictor variables as no curvilinear patterns were observed. Standardised residuals and predicted values plots showed an even distribution of data-points for all variables, suggesting that the assumption of homoscedasticity had been met. Inspection of bivariate correlations indicate that the assumption of multicollinearity was met as correlations between all predictor variables were below .8 (Tabachnick & Fidell, 2012). This was confirmed as variance inflation factors (VIF) were below 10 and Tolerance values were greater than 0.1 (Tabachnick & Fidell, 2012).

Preliminary Analysis

Checks of systematic difference in version, social anxiety, depression, anxiety and stress. To test for version effects, a series of one-way ANOVAs were conducted on the predictor and outcomes variables. No significant differences

emerged, with no *p* value greater than .05 evident. Therefore, data from all four versions were combined for analysis.

Bonferroni adjusted independent samples *t*-tests (α = .05/ 5 = .01) were conducted to examine the effects of gender, social anxiety, depression, anxiety and stress on the quantity of PDA responses. No systematic differences were found for any of these variables, indicating that the above factors did not effect participants' responses on the stimulus response task. See Table 3 for *t*-tests and descriptive statistics.

Manipulation checks. *Social Capital.* Participant ratings confirmed that the tie strength manipulation was successful, with close ties (*M* = 65.02, S*D* = 18.14) rated as significantly closer than weak ties (*M* = 28.04, *SD*=15.69), *t*(134)= -12.74, *p*<.001, 95% CI [-42.72, -31.24].

Positivity bias. Participant ratings of the valence of the images confirmed those from the pilot study, with participants rating the positive images (*M* = 81.61, SD = 13.96) as significantly more positive than the neutral images (*M* = 66.26, *SD* = 13.89), *t*(135) = 11.65,*p* <.001; and the negative images (*M* = 18.39, *SD* = 16.34) as significantly more negative than the neutral images, *t*(135) = 24.69, *p*<.001.

Ecological validity checks. On average, participants agreed that positive (*M* = 3.88, *SD* = .72) and neutral (*M* = 3.18, *SD* = .76) image stimuli were typical of those they would see posted on Facebook, however disagreed that the negative image stimuli were typical (*M* = 2.21, *SD* = .79). In light of the positivity bias seen in posting behaviour on Facebook (Utz, 2015), this suggests that the images presented as Facebook posts had appropriate ecological validity.

Table 3. *Means and Standard Deviations of Systematic Difference Checks*

Variable		*N*	*M*	*SD*	*t*	*df*	*p*	95% CI	*g*
Gender	Male	22	5.78	3.17	-1.40	134	.064	[-2.41, 0.07]	.42
	Female	113	6.95	2.65					
Social Anxiety	Low	22	6.0	2.72	-1.40	134	.163	[-2.17, 0.37]	.32
	High	114	6.90	2.77					
Depression	Normal-Mild	88	6.60	2.63	-.947	136	.345	[-1.45, 0.51]	.16
	Moderate- Severe	48	7.06	3.02					
Anxiety	Normal-Mild	66	6.51	2.72	-.989	136	.325	[-1.41, 0.47]	.05
	Moderate- Severe	70	6.98	2.82					
Stress	Normal-Mild	87	6.67	2.76	-.442	136	.659	[-1.02, 0.76]	.08
	Moderate- Severe	*49*	6.90	2.81					

Note. Cut of values for social anxiety were coded in accordance with mini-SPIN (Connor, Kobak, Churchill, Katzelnick, & Davidson, 2001) recommendations where scores greater than 6 indicate high levels of social anxiety. As the Depression Anxiety Stress Scale (DASS-21; Lovibond & Lovibond, 1995) contains more than two levels, dummy variables were created to examine the effect of depression, anxiety and stress on PDA use. The DASS-21 scores were dummy coded in order conduct the analysis, integrating the existing criteria into our coding method scores depression scores were grouped (normal-mild = 0-13, moderate-severe = 14+) anxiety (normal-mild = 0-9, moderate-severe = 10+) and stress (normal-mild = 0-18, moderate-severe = 19+).

Descriptive Statistics

Means, standard deviations and internal reliabilities (Cronbach's α) of the variables are presented in Table 4. Participants' reported similar levels of grandiose narcissism, Machiavellianism and psychopathy as reported in existing research (March et al., 2017). However, participants' reported higher levels of vulnerable narcissism than those previously reported (Pincus et al., 2009). Emotional Concern and Perspective Taking were comparable by to findings reported Chrysikou and Thompson (2016), and participants self-monitoring domains were consistent with Rosenberg and Egbert (2011). Reported levels of social anxiety, depression, anxiety and stress were similar those reported previously (Lovibond & Lovibond, 1995).

Reliability. Internal consistency reliabilities of the newly constructed assertive self-presentation tactics were ranged from unacceptable –questionable and were lower than reported in non-adapted measures (e.g., Self-Presentation Tactics Scale (Lee et al., 1999) and Online Self-Presentation Tactics Scale (Rosenberg, 2009), with Cronbach's alpha's of .91 and .97 respectively). Attention to consequences, empathetic concern and perspective taking all demonstrated good internal consistency. Machiavellianism, grandiose narcissism and psychopathy showed demonstrated good internal reliability were inconsistent with previous findings (March et al., 2017). Vulnerable narcissism and self-monitoring, aligning with findings by Pincus et al. (2009) and Rosenberg and Egbert (2011). Social anxiety, depression, anxiety and stress were also consistent with previous research (Osman et al., 2012).

Table 4. *Means, Standard Deviations, and Internal Reliabilities of All Variables.*

Variable	α	M	SD
Adapted Assertive Self-Presentation	.34	7.08	1.85
Adapted Defensive Self-Presentation	.65	6.75	2.52
Attention to Consequences	.87	16.77	5.09
Emotional Consideration	-	3.94	.968
Empathetic Concern	.83	20.57	4.65
Perspective Taking	.80	19.21	4.44
Ability to Modify Self-Presentation	.82	24.51	4.58
Sensitivity to the Expressive Behaviour of Others	.73	21.95	3.60
Grandiose Narcissism	.72	22.84	4.91
Machiavellianism	.80	24.48	5.76
Psychopathy	.70	18.80	5.01
Vulnerable Narcissism	.94	82.72	24.60
Social Anxiety	.84	9.24	3.24
Depression	.91	5.24	4.75
Anxiety	.90	5.28	4.93
Stress	.86	7.33	4.52

Note. Emotional Consideration was measured using one item.

Bivariate correlations. The correlation matrix is presented in Table 5. Grandiose narcissism and vulnerable narcissism showed a weak negative correlation, aligning with theoretical conceptualisations of narcissism (Wink, 1991).Consistent with existing literature, vulnerable narcissism, but not grandiose narcissism, demonstrated strong positive associations with social anxiety, depression, anxiety and stress (Hart et al., 2017). Similarly, grandiose narcissism showed stronger associations with assertive self-presentation tactics, while vulnerable narcissism shared a stronger association with defensive self-presentation tactics. Previous research has found that grandiose narcissism and vulnerable narcissism showed patterns of convergence with self-monitoring (Hart et al., 2017; Lee et al., 1999). However, only grandiose narcissism shared a weak positive association with the two domains of self-monitoring.

Table 5. *Bivariate Correlations of All Variables*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. Adapted Assertive Self-Presentation	-																	
2. Adapted Defensive Self-Presentation	.51***	-																
3. Attention to Consequences	..19*	.33***	-															
4. Emotional Consideration	.07	.24**	.63***	-														
5. Age	.06	-.04	.16	.05	-													

6. Gender	-.07	.003	-.04	-.16	-.013	-						
7. Empathic Concern	-.05	-.045	.06	.10	-.04	.14	-					
8. Perspective Taking	-.01	.02	.17	.11	.08	-.14	.58***	-				
9. Ability to Modify Self-Presentation	.05	-.07	-.01	.06	-.04	-.02	.15	.10	-			
10. Sensitivity to Expressive Behaviour of Others	.12	.11	.26**	.30***	.131	-.01	.33***	.40***	.41***	-		
11.Machiavell-ianism	.30***	.20***	.23	.01	-.05	-.26**	-.42***	-.19*	.14	-.04	-	
12.Psycho-pathy	.15	.13	-.01	-.07	-.08	-.30***	-.47***	.35***	-.18*	-.15	.53***	-

13. Grandiose Narcissism	.34***	.17	.03	-.05	.02	-.05	-.05	-.06	.22*	.11	.32***	.25**	-			
14. Vulnerable Narcissism	-.18	.37***	.16	.26**	-.21*	.03	-.02	-.17*	-.07	-.01	.23**	.22*	-.14	-		
15.Mini SPIN	-.10	.17*	.13	.17*	-.36***	.05	-.07	-.11	-.26**	-.10	.08	.10	-.43***	.57***	-	
16.Depression	-.03	.13	.10	.04	-.28**	-.07	.01	-.08	-.20*	-.04	.14	.26**	-.22**	.51***	.45***	-
17.Anxiety	.07	.18*	.16	.08	-.28**	-.05	.07	-.01	--.27**	-.05	.13	.24**	-.21*	.52***	.54***	.77***
18.Stress	-.03	.12	.07	.15	-.35***	-.04	.05	-.03	-.14	-.01	.12	.22*	-.15	.60***	.49***	.74***

Note. *p< .05, **p< .01, ***p < .001.

Inferential Statistics

Effect of image valence and tie-strength. A 2x3 repeated measures ANOVA was conducted to investigate the influence of social capital and image type on the use of PDAs. There was a significant main effect of image type, $F(2,44) = 7.05$, $p = .002$, $\eta_p^2 = .24$, indicating a large effect size. The main effect of tie-strength was not significant, $F(1,22) = .175$, $p = .243$, $\eta_p^2 = .008$, suggesting a small effect. However, the interaction between image type and tie-strength was significant and a large effect was observed, $F(2,44) = 19.63$, $p < .001$, $\eta_p^2 = .47$. Pairwise comparisons indicated that a significantly greater quantity of PDAs were given to positive images ($M = 1.80$, $SE = .044$), than to neutral and negative images ($M = 1.65$, $SE = .073$, $M = 1.54$, $SE = .044$ respectively). There were no statistically significant differences between the quantity of PDAs given to strong and weak ties on positive images ($M = 1.95$, $SE = .043$, $M = 1.8$, $SE = .08$ respectively). However, there was a significant difference observed between strong and weak ties for both neutral images *($M = 1.87$, $SE = .07$* and $M = 1.43$, $SE = .10$) and negative images ($M = 1.87$, $SE = .11$ and $M = 1.21$, $SE = .10$).

Predicting the Motivations of PDA Use

The results for the multiple hierarchical regression analyses predicting the use of PDAs as an assertive self-presentation tactic, as a defensive self-presentation tactic and the attention to consequences of PDA use and emotional consideration for PDA use are presented in Tables 6, 7, 8 and 9, respectively. For all analyses age, gender, empathic concern, perspective taking, ability to modify self-presentation, sensitivity to the expressive behaviour of others, Machiavellianism, and psychopathy were entered in Step 1 as control variables. Grandiose narcissism and vulnerable

narcissism entered in Step 2. Effect sizes were interpreted in accordance with Cohen's (1988; 1992) guidelines.

Assertive self-presentation tactics. The control variables in Step 1 accounted for 11.7% of variance in assertive PDA use which was statistically significant, $R = .34$, adjusted$R^2 = .06$, $F(8, 127) = 2.11$, $p = .04$, with $f^2 = .13$ suggesting a small-medium effect. Machiavellianism was the only individual variable that contributed significantly to the model, positively predicting the motivations of using PDAs as assertive self-presentation. The addition of narcissism in Step 2 explaining an additional 11% of the variance in the motivations of assertive PDA use, F_{change} (2,125) = 8.93, $p < .001$. The final model was significant, $R = .48$ and explained 22.8% of variance, adjusted$R^2 = .17$, $F(10, 125) = 3.68$, $f^2 = .30$, a large effect. Machiavellianism was no longer a significant predictor in the model, however both grandiose and vulnerable narcissism were significant positive predictors, with grandiose narcissism showing greater influence than vulnerable narcissism ($\beta = .36$ and $\beta = .22$, respectively).

Defensive self-presentation tactics. In Step 1, the control variables accounted for a statistically significant 15.4% of variance in motivation to use PDAs as defensive self-presentation tactics, $R = .38$, adjusted $R^2 = .101$, $F(8, 127) = 2.89$, $p = .005$. This was a medium effect, $f^2 = .18$. In this step, higher levels of Machiavellianism and sensitivity to the expressive behaviour of others, and lower levels of the ability to modify self-presentation, were significantly associated with motivations to use PDAs as defensive self-presentation tactics. The addition of narcissism subtypes at Step 2 significantly improved the model, F_{change} (2,125) = 9.65, $p < .001$, accounting for an additional 11.3% of variance in the motivation to use PDAs as defensive self-presentation tactics. The final model was also significant,

R = .52, adjusted R^2 = .21, F(10,125) = 4.56, p< .001, and explained 26.7% of variance. This represented a large effect, f^2 = .36. Within the model, lower levels of the ability to modify self-presentation and higher levels of Machiavellianism, grandiose narcissism, and vulnerable narcissism were significant predictors of the use of PDAs as defensive self-presentation tactics. Of these, vulnerable narcissism was the strongest contributor to the model, as evident by the β weights.

Attention to consequences. The control variables entered at Step 1 accounted for 13.7% (adjusted R^2= .082) of the variance in the motivation to attend to consequences which was statistically significant, R = .37, F(8, 127) = 2.51, p = .014. The ability to modify self-presentation was a significant negative predictor, while the sensitivity of the expressive behaviour of others and Machiavellianism were significant positive predictors of attention to the consequences of PDA use for their own and the poster's reputation. The addition of narcissism improved the model, but not significantly, explaining only 2.4% of additional variance in the motivation to attend the consequences of PDA use, F_{change} (2,125) = 1.75, p = .177. Overall though, the model was significant, R = .40, adjusted R^2 = .09, F(10,25) = 2.39, p = .013, with a medium effect f^2 = .19, and explaining 16% of variance. Sensitivity to the expressive behaviour of others was the only significant predictor, with higher levels of the trait predicting the motivation to consider consequences associated with PDA use.

Emotional consideration. The control variables in Step 1 accounted for 14.1% of the variance in consideration of emotional responses to PDAs, this was statistically significant, R = .38, adjR^2= .087, F(8, 127) = 2.61, p = .011, with f^2=.15 indicating a medium effect. Being male and reporting sensitivity to the expressive behaviour of others positively predicted emotional consideration. At Step 2, the

inclusion of narcissism subtypes significantly improved the model, F_{change} (2,125) = 6.51, p = .002, explaining an additional 8.1% of variance. In the final model, being male, sensitivity to the expressive behaviours of others, and vulnerable narcissism contributed significantly to the model and positively predicted consideration of how a poster may feel when receiving a like or reaction before giving PDAs. This model was statistically significant and explained 22.2% of variance, R = .47, adjR^2 = .16, F(10,125) = 3.57, p < .001, with a medium-large effect evident f^2 = .28.

Table 6.

Multiple Hierarchical Regression Results Predicting Motivations to Use PDAs as Assertive Self-Presentation Tactics

Model		*B*	*SE*	Beta	*t*	*p*	95% CI for *B*
Step 1	Constant	2.66	2.13	-	1.24	.215	[-1.56, 6.89]
	Age	0.01	0.01	.06	0.73	.463	[-0.01, 0.03]
	Gender	0.01	0.46	.00	0.02	.979	[-0.89, 0.92]
	Empathetic Concern	0.03	0.04	.08	0.71	.476	[-0.05, 0.12]
	Perspective Taking	-0.01	0.04	-.04	-0.36	.715	[-0.11, 0.07]
	Ability to Modify Self-Presentation	-0.02	0.04	-.05	-0.56	.577	[-0.10, 0.05]
	Sensitivity to the Expressive Behaviour of Others	0.08	0.06	.14	1.40	.162	[-0.03, 0.20]
	Machiavellianism	-0.10	0.03	.33	3.06	.003	[0.03, 0.17]
	Psychopathy	0.01	0.04	.02	0.20	.842	[-0.07, 0.09]
Step 2	Constant	1.46	2.05	-	0.71	.478	[-2.59, 5.51]
	Age	0.01	0.01	.07	0.95	.341	[-0.01, 0.03]

Gender	-0.17	0.43	-.03	-0.41	.682	[-1.04, 0.68]
Empathetic Concern	-0.00	0.04	-.02	-0.17	.862	[-0.09, 0.08]
Perspective Taking	0.01	0.04	.02	0.23	.813	[-0.08, 0.10]
Ability to Modify Self-Presentation	-0.03	0.03	-.09	-0.96	.334	[-0.11, 0.03]
Sensitivity to the Expressive Behaviour of Others	0.06	0.05	.10	1.07	.285	[-0.05, 0.17]
Machiavellianism	0.06	0.03	.19	1.75	.082	[-0.01, 0.13]
Psychopathy	-0.03	0.04	-.08	-0.77	.439	[-0.11, 0.04]
Grandiose Narcissism	0.13	0.03	.35	3.97	<.001	[0.06, 0.20]
Vulnerable Narcissism	0.01	0.01	.22	2.46	.015	[0.01, 0.03]

Note. CI = confidence interval.

Table 7.

Multiple Hierarchical Regression Results Predicting Motivations to Use PDAs as Defensive Self-Presentation Tactics

Model		*B*	*SE*	Beta	*t*	*p*	95% CI for *B*
Step 1	Constant	1.49	2.83	-	0.52	.599	[-4.11, 7.11]
	Age	-0.01	0.01	-.05	-0.68	.497	[-0.04, 0.02]
	Gender	0.59	0.61	.08	0.97	.331	[-0.61, 1.80]
	Empathetic Concern	0.02	0.06	.04	0.41	.682	[-0.09, 0.14]
	Perspective Taking	0.01	0.06	.01	0.13	.896	[-0.11, 0.13]
	Ability to Modify Self-Presentation	-0.12	0.05	-.22	-2.36	.019	[-0.23, -0.02]
	Sensitivity to the Expressive Behaviour of Others	0.16	0.08	.20	2.00	.047	[0.01, 0.32]
	Machiavellianism	0.17	0.04	.40	3.84	<.001	[0.08, 0.27]
	Psychopathy	-0.02	0.05	-.04	-0.40	.687	[-0.13, 0.08]
Step 2	Constant	-0.67	2.70	-	-0.24	.805	[-6.03, 4.68]
	Age	-0.00	0.01	-.00	-0.06	.952	[-0.03, 0.03]

Gender	0.34	0.57	.05	0.59	.551	[-0.79, 1.48]
Empathetic Concern	-0.03	0.06	-.07	-0.64	.519	[-0.15, 0.08]
Perspective Taking	0.06	0.06	.11	1.04	.299	[-0.05, 0.18]
Ability to Modify Self-Presentation	-0.11	0.05	-.21	-2.26	.025	[-.21, -.01]
Sensitivity to the Expressive Behaviour of Others	0.12	0.07	.14	1.56	.121	[-0.03, 0.27]
Machiavellianism	0.11	0.04	.26	2.46	.015	[0.02, 0.20]
Psychopathy	-0.06	0.05	-.13	-1.21	.227	[-0.17, 0.04]
Grandiose Narcissism	0.10	0.04	.20	2.34	.021	[0.01, 0.19]
Vulnerable Narcissism	0.03	0.01	.36	4.21	< .001	[0.02, 0.05]

Note. CI = confidence interval.

Table 8.

Multiple Hierarchical Regression Results Predicting Attention to Consequences

Model		*B*	*SE*	Beta	*t*	*p*	95% CI for *B*
Step 1	Constant	7.80	5.79	-	1.34	.181	[-3.67,19.27]
	Age	0.05	0.03	.12	1.49	.138	[-0.01, 0.12]
	Gender	-0.34	1.24	-.02	-0.27	.784	[-2.81, 2.12]
	Empathetic Concern	0.08	0.12	.07	0.66	.508	[-0.16, 0.33]
	Perspective Taking	-0.04	0.13	-.04	-0.35	.727	[-0.30, 0.21]
	Ability to Modify Self-Presentation	-0.21	.010	-.19	-1.9	.049	[-0.43,-0.00]
	Sensitivity to the Expressive Behaviour of Others	0.51	0.16	.31	3.10	.002	[0.18, 0.84]
	Machiavellianism	0.21	0.09	.24	2.23	.027	[0.02, 0.40]
	Psychopathy	-0.09	0.11	-.09	-0.86	.390	[-0.32, 0.12]
Step 2	Constant	5.91	5.86	-	1.00	.315	[-5.68, 17.51]
	Age	0.06	0.03	.15	1.81	.072	[-0.01, 0.13]

Gender	-0.52	1.24	-.03	-0.41	.676	[-2.99, 1.94]
Empathetic Concern	0.03	0.13	.03	0.24	.803	[-0.22, 0.29]
Perspective Taking	0.01	0.13	.00	0.03	.974	[-0.25, 0.26]
Ability to Modify Self-Presentation	-.019	0.11	-.17	-1.73	.086	[-0.41, 0.02]
Sensitivity to the Expressive Behaviour of Others	0.47	0.16	.28	2.86	.005	[0.14, 0.80]
Machiavellianism	0.16	0.10	.18	1.63	.104	[-0.03, 0.36]
Psychopathy	-0.12	0.11	-.12	-1.05	.293	[-0.35, 0.10]
Grandiose Narcissism	0.03	0.09	.03	0.33	.741	[-0.16, 0.22]
Vulnerable Narcissism	0.03	0.01	.17	1.86	.065	[-0.00, 0.07]

Note. CI = confidence interval.

Table 9.

Multiple Hierarchical Regression Results Predicting Emotional Consideration

Model		*B*	*SE*	Beta	*t*	*p*	95% CI for *B*
Step 1	Constant	4.22	1.09	-	3.84	<.001	[2.04, 6.40]
	Age	7.12	0.01	<.001	.001	.999	[-0.01, .013]
	Gender	-0.57	0.23	-.22	-2.43	.016	[-1.04, -0.12]
	Empathetic Concern	0.01	0.02	. 06	0.52	.605	[-0.03, 0.06]
	Perspective Taking	-0.03	0.02	-.12	-1.12	.270	[-0.07, 0.02]
	Ability to Modify Self-Presentation	-0.03	0.02	-.13	-1.33	.186	[-0.06, 0.01]
	Sensitivity to the Expressive Behaviour of Others	0.11	0.03	.35	3.52	.001	[0.05, 0.17]
	Machiavellianism	0.01	0.02	.08	0.78	.437	[-0.02, 0.05]
	Psychopathy	-0.03	0.022	-.17	-1.56	.121	[-0.07, 0.01]
Step 2	Constant	3.58	1.07	-	3.34	.001	[1.46, 5.71]
	Age	0.01	0.01	.05	0.67	.501	[-0.01, 0.02]

Gender	-0.63	0.23	-.24	-2.76	.007	[-1.08, -.18]
Empathetic Concern	-0.01	0.02	-.02	-0.18	.853	[-0.05, 0.043]
Perspective Taking	-0.01	0.02	-.04	-0.43	.669	[-0.06, 0.03]
Ability to Modify Self-Presentation	-0.02	0.02	-.08	-0.85	.396	[-0.06, 0.02]
Sensitivity to the Expressive Behaviour of Others	0.01	0.03	.31	3.23	.002	[0.04, 0.16]
Machiavellianism	-0.01	0.02	-.01	-0.07	.942	[-0.04, 0.03]
Psychopathy	-0.04	0.02	-.21	-1.90	.059	[-0.08, 0.01]
Grandiose Narcissism	0.01	0.02	.02	0.23	.819	[-0.03, 0.04]
Vulnerable Narcissism	0.01	0.01	.31	3.52	.001	[0.01, 0.02]

Note. CI = confidence interval.

Discussion

The purpose of this study was to further investigate the use of PDAs on Facebook, considering how social capital and the positivity bias influence PDA use, and whether the two faces of narcissism motivate the use of PDAs on Facebook. Specifically, this study examined the motivations of PDA use in light of assertive self-presentation tactics, defensive self-presentation tactics, attention to consequences, and emotional consideration. Notably, tie-strength, along with the positivity bias were examined through an objective experimental approach.

The positivity bias evident in Facebook content (Spottswood & Hancock, 2016; Utz, 2015) indicates that positive valanced images should be evaluated as the most appropriate type of post and increase the willingness to respond. Hypothesis (1) predicted that more PDA responses would be given to positive images than to neutral and negative images. The Facebook Reaction feature was teased apart to identify the specific types of Reactions that were given to positive, neutral and negative valanced images. Examination of the PDA responses to the stimulus response task revealed that 'like' and 'love' were the most commonly used Facebook Reaction overall. The percentage of PDAs that were given to positive images were greater than the percentage of PDA responses to neutral and negative images. These findings highlight that participants' responses to the stimuli are reflective of the positivity bias that is observed on Facebook (Spottswood & Hancock, 2016; Utz, 2015). Additionally, negative images received a greater percentage of 'Sad' Reactions which may indicate that participants' were motivated to use PDAs in order to communicate social support (Carr et al., 2016).

Facebook provides an ideal platform for bonding with strong ties and bridging with weak ties (Rozzell et al., 2014). As a result, PDAs can vary as a

function of relational closeness (Hayes et al., 2016b). Our hypothesis (2) that more PDA responses would be given to strong ties, rather than weak ties was partially supported. The results suggest that individuals are just a likely to respond to close and weak ties for positive images, but are less likely to respond when a neutral or negative valanced images are posted by a weak tie. These findings are in line with Ziegele and Reinecke (2017), indicating that social norms of appropriateness regulate behaviour on Facebook. Although these norms stigmatise negative emotional disclosures in image content, it is promising that users are willing to respond to negative images posted by strong ties. The responses reinforce the notion of PDAs as a form of digital empathy (Carr et al., 2016). Accordingly, adhering to social norms through the use of PDAs may enable users to maintain relationships which assist in fulfilling the need to belong: a need which is considered universal (Ozanne et al., 2017).

Narcissism Subtypes and Self-Presentation

The second aim of this study was to delineate narcissism and the motivations underpinning the use of PDAs on Facebook. The first regression model supported the hypothesis that both grandiose and vulnerable narcissism would significantly contribute to the motivation to use PDAs as assertive self-presentation tactics. After controlling for age, gender, empathetic concern, perspective taking, ability to modify self-presentation, sensitivity to the expressive behaviour of others, Machiavellianism, and psychopathy, the inclusion of narcissism significantly improved the model's ability to predict the motivation to use PDAs for assertive self-presentation.

Of the control variables, Machiavellianism was the only trait to contribute significantly to the model. Machiavellianism may have emerged as a significant

predictor due to the commonalities of self-promotion and interpersonal manipulation shared with grandiose narcissism (Baskin-Sommers et al., 2015). In line with previous research (Hart et al., 2017), grandiose narcissism had the strongest association with assertive self-presentation tactics. Indeed, grandiose narcissists may view PDAs as an opportunity for image cultivation and to increase social power, thus enhancing impression motivation and assertive self-presentation (Hart et al., 2017). Consistent with the findings of Hart et al. (2017), vulnerable narcissism was also a significant predictor of the motivation to use PDAs for assertive self-presentation.

A similar pattern of results was observed for the second regression model, which examined the hypothesis that vulnerable narcissism would positively predict motivations to use PDAs as defensive self-presentation tactics. Greater levels of Machiavellianism and lower levels of the ability to modify self-presentation were positive predictors. As hypothesised and consistent with existing literature (Hart et al., 2017a), vulnerable narcissism was a significant predictor of the motivation to use PDAs as defensive self-presentation tactics and was the strongest contributor to the model. However, our hypothesis was partially supported as grandiose narcissism also emerged as a significant predictor, thereby increasing the likelihood that those with higher levels of grandiose narcissism may have a greater motivation to use PDAs as defensive tactics.

These findings suggest that on Facebook, grandiose narcissists and vulnerable narcissists may be motivated to use PDAs as both assertive and defensive self-presentation tactics. However, less clear is why grandiose narcissism contributed significantly to the motivation to use PDAs as defensive tactics. One possible theoretical consideration that could help to explain these findings is the

fluctuation hypothesis (Gore & Widiger, 2016). This hypothesis suggests that narcissistic individuals fluctuate between grandiosity and vulnerability. Although these findings are confined to informant ratings. Stemming from this concept, Krizan and Herlache (2018) recently proposed the spectrum model of narcissism. Rather than considering two distinct domains of temperament functioning, the model conceptualises narcissism as a spectrum of personality characterised by self-importance and entitlement. Moreover, existing measures of narcissism may be insensitive to the potential fluctuations between grandiosity and vulnerability.

Drawing from the theoretical explanations above, the results found in this study could be interpreted that the motivation for grandiose and vulnerable narcissists to adopt both assertive and defensive tactics may allow them to preserve an online following and uphold the need for admiration. Grandiose narcissists may be motivated to vary the use of assertive and defensive tactics to prevent other users from unfriending them. Conversely, vulnerable narcissists may be motivated to use PDAs assertively in order to enhance their fragile self-esteem. For example, vulnerable narcissists could be highly motivated to assert their online presence through 'liking' others Facebook posts. Which could, in turn, increase the likelihood of receiving likes in return and act to validate their identity, known as deceptive like-seeking behaviour (Dumas et al., 2017; Scissors et al., 2016). Consistent with Krizan and Herlache (2018), our finding hints at the possibility of a potential fluctuation in the respective traits of narcissism which may also be observed in the impression motivation to use PDAs on Facebook.

Attention to Consequences

Vulnerable narcissists are sensitive to interpersonal threat (Besser & Priel, 2010), which may motivate them to attend to potential consequences that are

associated with PDA use in order to build a stronger self-image through the feedback of others. In contrast, grandiose narcissists have less regard for others and do not require validation from others (Besser & Priel, 2010). The hypothesis that grandiose narcissism would negatively predict the attention to the consequences, while vulnerable narcissism would positivity predict attention to consequences was partially supported. Neither vulnerable narcissism or grandiose narcissism contributed significantly to the model. Sensitivity to the expressive behaviour of others was the only significant predictor, with higher levels of the trait predicting the motivation to consider consequences associated with PDA use.

The results obtained appear to be somewhat contradictory to theoretical conceptualisations of vulnerable narcissism, where anticipating future consequences may be helpful to minimise intrapersonal threat to their self-image. Evidence from Yang et al. (2018) identified narcissism as a moderator for risk preference, indicating less concern for consequences in a momentary gambling task. Relatedly, Byrne and Worthy (2013) found that narcissists demonstrated a heightened disregard for others in social decision-making tasks. However, both of these studies examined the homogenous cluster of narcissism rather than considering lower-level traits of grandiosity and vulnerability. Notably, the measurement of attention to consequences in this study combined items addressing both the reputation of the audience and the self, which may have attenuated an effect of vulnerable narcissism.

Emotional Consideration

The final regression model, addressing the hypothesis vulnerable narcissism would positivity predict the consideration of others' emotions prior to using PDAs was partially supported. As expected, vulnerable narcissism was a significant predictor of emotional consideration. Vulnerable narcissists, though self-infatuated,

may be motivated to engage in deceptive like-seeking by considering the emotions of other users (Dumas et al., 2017), thus, their emotional consideration is strategic, rather than prosocial. In line with Baskin-Sommers et al. (2015), the empathic capacity of narcissists has been found to vary depending on motivational and situational factors. Therefore, emotional consideration may serve as a screening mechanism to assist vulnerable narcissists in analysing the effectiveness of using PDAs for assertive and defensive self-presentation tactics.

Gender and sensitivity to the expressive behaviour of others also emerged as positive predictors of emotional consideration. Surprisingly, in contrast to existing research reporting that females possess higher levels of empathy than males (Felnhofer et al., 2014). Our data suggests that being male contributed to greater consideration of users feeling prior to using PDAs. It is unclear why this result emerged, especially given the small number of males in this study. Furthermore, it is also surprising that perspective taking and empathetic control did not contribute significantly to the model given that they are related to the underlying construct of empathy.

Limitations and Directions for Future Research

The findings of the current study need to be interpreted in light of several limitations. The stimulus response tasks, while allowing causality to be inferred, did rely on an analogue methodology, and that in real Facebook exchanges, Facebook users might respond in a different manner. Nonetheless, as steps were taken to ensure ecological validity was maximised, it is reasonable to assume that the current results were a reasonable reflection of actual PDA behaviours. Despite the results aligning with the positivity bias, the stimuli were unable to capture the complexity and automaticity of PDAs. The stimuli created controlled for contextual cues such as

captions and the number of likes a post has already received (Chin et al., 2015) which may have resulted in poorer ecological validity. Research is beginning to utilise content analysis and the Facebook activity log to examine PDA use (Sumner et al., 2018). This feature permits users to see past actions such as the types of reactions given to posts (Ozanne et al., 2017). The use of content analysis and the Facebook activity log for data collection would increase the ecological validity of the results and strengthen the conclusions that can be drawn.

The investigation of the motivations for PDA use relied on adapted items from Lee et al. (1999) and Rosenberg (2009). The measure of attention to consequences had good internal reliability (α = .87). However, the adapted assertive and defensive items demonstrated questionable and poor internal reliabilities (α = .34 and .65 respectively). It is possible that with a different approach to measuring assertive and defensive motivations for PDA use, even stronger relationships would emerge. Moreover, emotional consideration was assessed with the use of a single item in an attempt to capture the construct accurately. More items may be needed to in order to identify additional variance in the construct. However, some research supports the use of a single item in cases where construct has a clear single-meaning, known as a 'doubly concrete construct' and are comparable to that of multi-item measures (Bergkvist, 2014). Future research should look to further develop and validate a psychometric scale of PDA self-presentation.

Finally, PDAs can be both given and received, and presentation through the use of PDAs can be examined from the perspective of the 'self' in terms of impression motivation and construction, and also from the 'other' by investigating how successful an impression was or by how others perceive the impression (Hong et al., 2017; Stopfer, Egloff, Nestler, & Back, 2014). This study adopted the first

orientation in investigating individuals' motivations to use PDAs as a tool for self-presentation. Future analysis should also consider the success of impression management and adopt a cross platform approach (Hayes et al., 2016a; Rains & Brunner, 2015). For example, do individuals use and interpret Facebook reactions in a similar way to 'likes' on Instagram? Furthermore, during online interactions, Humans possess a remarkable ability to draw meaning from a seemingly simple 'one click' cue. Therefore, another possibility for future research is to unpack Facebook Reactions by linking them to universal human emotions (Kaye, Malone, & Wall, 2017). Specifically, are Facebook Reactions processed in a similar way to emotions in face-to-face interactions and can Facebook Reactions be considered a true form of emotion on both a neurological and interpersonal level? (Kaye et al., 2017).

Contributions

The findings in this study contribute to the literature by providing further support for social capital and positivity bias on Facebook, this time through an experimental, behavioural paradigm. The result of hypothesis (1) demonstrated that the positivity bias is not only present in the content posted, but also in PDA responses. This behavioural response may act to reinforce the positivity bias on Facebook. Consistent with previous research, a greater number of PDAs were given to positive images overall and negative images posted by a strong tie. It is clear from our study that social capital and the positivity bias are important factors underlying users' PDA use and highlights the commutative norms and expectations guiding computer-mediated interactions on Facebook.

Additionally, this study took the initial step to delineate narcissism and examine motivations underlying the two faces of narcissism and use of PDAs on Facebook. Our findings highlight commonalities in the motivations of grandiose and

vulnerable narcissists to use PDAs as assertive and defensive self-presentation tactics. Notably, this study offers theoretical contributions to the fluctuation hypothesis and spectrum model of narcissism, providing a potential avenue for future research. Overall, this study indirectly reinforces the need to belong and the need for self-presentation underlying Facebook (Nadkarni & Hofmann, 2012) and their transference to the motivations to use PDAs (Ozanne et al., 2017).

Conclusions

In conclusion, the overall aim of this study was to further investigate the use of PDAs on Facebook, by firstly considering how social capital and the positivity bias influences the use of Facebook Reactions. Secondly, this study took the initial step to delineate narcissism and examine motivations underlying narcissists use of PDAs on Facebook. Our results indicated that both grandiose and vulnerable narcissism predicted motivations to use PDAs as assertive and defensive self-presentation tactics. The theoretical models of narcissism and PDA motivation presented here should only be considered as a base for future research. The study's findings are limited in their implications by the measurement of self-presentation tactics. Therefore, future research is required to overcome these limitations and in order to gain a better understanding of the motivations and behavioural manifestations of PDAs during online interactions. It can be concluded that the simple act of creating a PDA on Facebook has surreptitiously complex motivational bias.

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Appendices

Appendix A: Pilot Study

A1: Human Research Ethics Committee Approval Letter

A2: Pilot Study Participant Information Sheet and Online Consent

A3: Pilot Study Stimuli

Appendix B: Main Study

B1: Main Study Demographic Information

B2: Short Dark Triad (SD3)

B3: Contingent Self-Esteem, Hiding the Self and Devaluing Subscales from the Pathological Narcissism Inventory (PNI)

B4: Revised Self-Monitoring Scale

B5: Empathetic Concern and Perspective Taking Subscales from the Interpersonal Reactivity Index

B6: Response Task Stimuli

B7: Adapted PDA Items

Appendix C: Main Study Ethical Requirements

C1: Recruitment PowerPoint Slide

C2: Recruitment Flyer

C3: Social Media Advertising

C4: Main Study Participant Information Sheet & Online Consent

Social Science Ethics Officer
Private Bag 01 Hobart
Tasmania 7001 Australia
Tel: (03) 6226 2763
Fax: (03) 6226 7148
Katherine.Shaw@utas.edu.au

HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

29 May 2018

Dr Rachel Grieve
Psychology
Private Bag 30

Dear Dr Grieve

Re: MINIMAL RISK ETHICS APPLICATION APPROVAL
Ethics Ref: H0017375 - How do people use Facebook reactions?

We are pleased to advise that acting on a mandate from the Tasmania Social Sciences HREC, the Chair of the committee considered and approved the above project on 28 May 2018.

This approval constitutes ethical clearance by the Tasmania Social Sciences Human Research Ethics Committee. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities is required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

Please note that this approval is for four years and is conditional upon receipt of an annual Progress Report. Ethics approval for this project will lapse if a Progress Report is not submitted.

The following conditions apply to this approval. Failure to abide by these conditions may result in suspension or discontinuation of approval.

1. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval, to ensure the project is conducted as approved by the Ethics Committee, and to notify the Committee if any investigators are added to, or cease involvement with, the project.

2. Complaints: If any complaints are received or ethical issues arise during the course of the project, investigators should advise the Executive Officer of the Ethics Committee on 03 6226 7479 or human.ethics@utas.edu.au.

3. Incidents or adverse effects: Investigators should notify the Ethics Committee immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.

4. Amendments to Project: Modifications to the project must not proceed until approval is obtained from the Ethics Committee. Please submit an Amendment Form (available on our website) to notify the Ethics Committee of the proposed modifications.

5. Annual Report: Continued approval for this project is dependent on the submission of a Progress Report by the anniversary date of your approval. You will be sent a courtesy reminder closer to this date. **Failure to submit a Progress Report will mean that ethics approval for this project will lapse.**

6. Final Report: A Final Report and a copy of any published material arising from the project, either in full or abstract, must be provided at the end of the project.

Yours sincerely

Emma Field
Ethics Officer
Tasmania Social Sciences HREC

A PARTNERSHIP PROGRAM IN CONJUNCTION WITH THE DEPARTMENT OF HEALTH AND HUMAN SERVICES

Appendix A2

Pilot Study Participant Information Sheet and Online Consent

Invitation

You are invited to participate in this study to rate a series of images on various dimensions. This study is being conducted as partial fulfilment of an Honours degree for student Linda Fish, under supervision of Dr. Rachel Grieve, in the School of Medicine (Psychology) at the University of Tasmania.

What is the purpose of this study?

Images account for an increasing proportion of content on social networking sites, particularly Facebook. The purpose of this pilot study is to choose the most appropriate images to use for a future study.

Why have I been invited to participate?

In order to participate in this study, you need to be over the age of 18 and be an active user of Facebook. Your participation in this study is voluntary. There will be no consequences for individuals who do not wish to participate in this study.

If you choose to participate in this anonymous online study, you will be asked to complete short questions about an image such as "*How positive, neutral or negative do you think this image is?"; "This image reflects what I see on social media"* and *"What aspect/s of the image influenced your rating?"*. The questionnaire will take up to 30 minutes to complete. All responses that you provide will be completely

anonymous and no information that could identify you will be collected as part of the study.

Are there any possible benefits from participation in this study?

It is not anticipated that taking part in this study will result in any direct benefits to participants. However, first year students studying Psychology at the University of Tasmania will be eligible to receive 60 minutes of research participation credit for their participation in this study via SONA.

Are there any possible risks from participation in this study?

There are no specific risks anticipated with participation in this study. However, if UTAS students participating in this study would like to access counselling services, they can do so by following this link: http://www.utas.edu.au/students /counselling/personal-counselling. Participants from the general public should contact their GP, or Lifeline on 13 11 14.

What if I change my mind during or after the study?

Your participation in this study is voluntary. You may choose to not participate at any time without providing an explanation, simply by closing the web page. All information you have provided to that point will remain anonymous. If you withdraw from the study after completing the questionnaires, it will not be possible to identify your data in order to remove it, as participation is anonymous.

What will happen to the information when this study is over?

Data will be collected using a secure online service, and will be stored on a password-protected server in the UTAS Psychology Division. The data will be kept for a minimum of 5 years from the date of first publication. Following this, data will be deleted.

How will the results of this study be published?

Relevant findings from this study will be reported in an Honours Thesis, and may also be reported in an academic journal, or at an academic conference. As participation is anonymous, no participants will be identified in any publication.

What if I have questions about this study?

For further information, please contact Linda Fish (lfish@utas.edu.au) or Dr. Rachel Grieve (rachel.grieve@utas.edu.au).

This study has been approved by the Tasmanian Social Sciences Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study, please contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au. The Executive Officer is the person nominated to receive complaints from research participants. Please quote ethics reference number [H0017375].

Thank you for considering participation in this study.

If you have read and understood all of the above information, and you consent to take part in this study, please click ‘Yes’. If you do not consent to take part in this study, please click ‘No’ and you will be exited from the survey.

Appendix A3

Pilot Study Stimuli

Positive Stimuli

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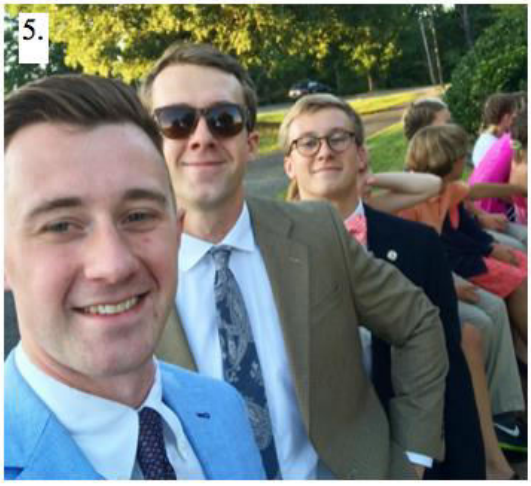

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Neutral Stimuli


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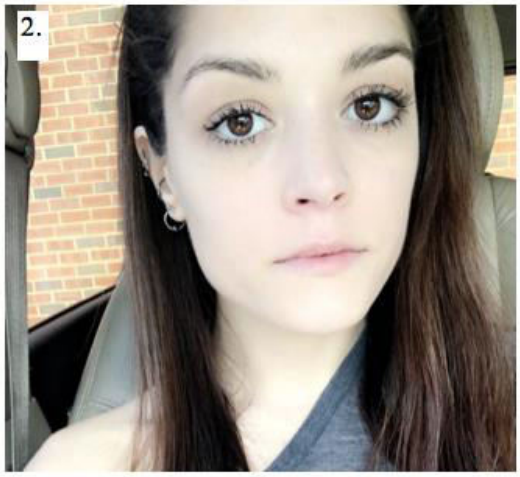
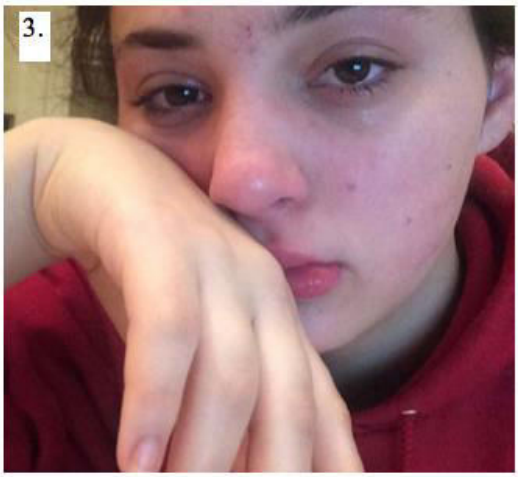
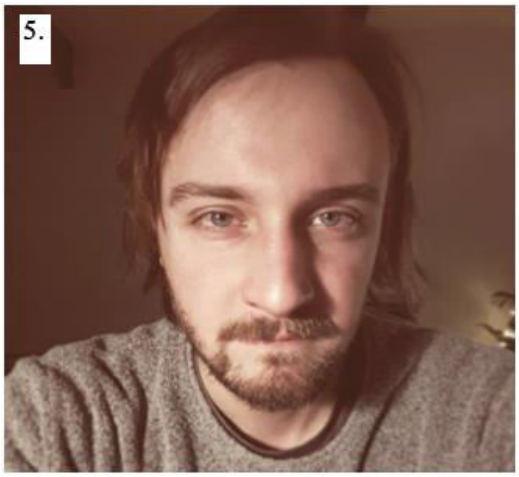
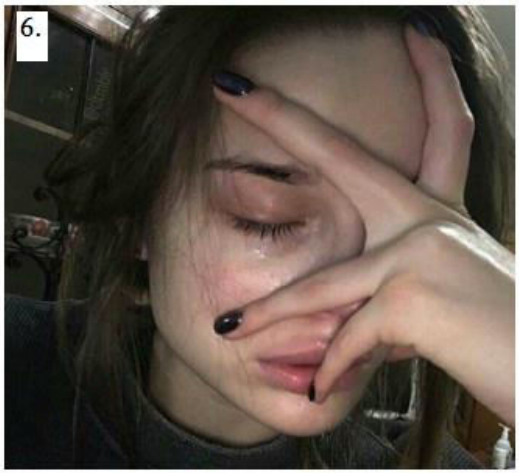
8.

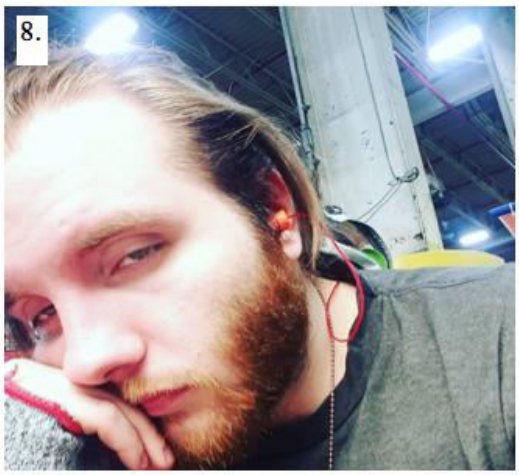
Negative Stimuli

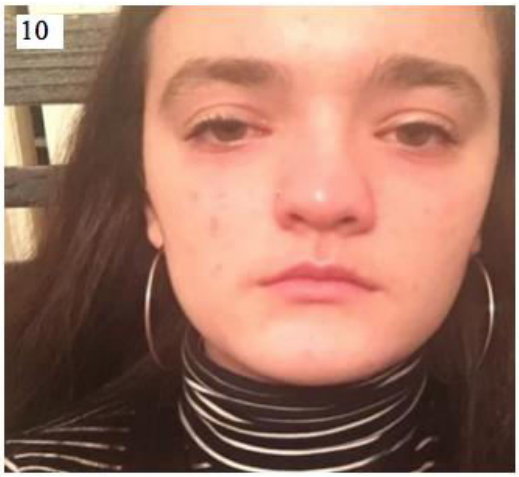












Note. Numbers correspond with the pilot study data analysis order. Numbers were not displayed on the stimuli in the pilot study.

Appendix B1

Main Study Demographic Information

Directions: Please answer the following questions as they apply to you

Age: _____.

Gender: male/female/other

How long have you been a Facebook user? _____.

How many friends so you have on Facebook in TOTAL? _____.

Of those, how many are *actual* friends? _____.

In the past week, on average, approximately how much time PER DAY have you spent actively using Facebook?

Appendix B2

Short Dark Triad (Jones & Paulhus, 2014)

Directions: Please indicate how much you agree with each of the following statements. 1 (*disagree strongly*); 2 (*disagree*); 3 (*neither agree nor disagree*); 4 (*agree*); 5(*agree strongly*).

Machiavellianism

1. It's not wise to tell your secrets.
2. I like to use clever manipulation to get my way.
3. Whatever it takes, you must get the important people on your side.
4. Avoid direct conflict with others because they may be useful in the future.
5. It's wise to keep track of information that you can use against people later.
6. You should wait for the right time to get back at people.
7. There are things you should hide from other people to preserve your reputation.
8. Make sure your plans benefit yourself, not others.
9. Most people can be manipulated.

Narcissism

10. People see me as a natural leader.
11. I hate being the centre of attention.*
12. Many group activities tend to be dull without me.
13. I know that I am special because everyone keeps telling me so.
14. I like to get acquainted with important people.
15. I feel embarrassed if someone compliments me.*

16. I have been compared to famous people.

17. I am an average person.*

18. I insist on getting the respect I deserve.

Psychopathy

19. I like to get revenge on authorities.

20. I avoid dangerous situations.*

21. Payback needs to be quick and nasty.

22. People often say I'm out of control.

23. It's true that I can be mean to others.

24. People who mess with me always regret it.

25. I have never gotten into trouble with the law.*

26. I enjoy having sex with people I hardly know.

27. I'll say anything to get what I want.

Note. Reversed items are indicated with *. Responses were summed for an overall score of each trait.

Appendix B3

Contingent Self-Esteem, Hiding the Self and Devaluing sub-scales from Pathological Narcissism Inventory (PNI) (Pincus et al., 2009)

Directions: Please indicate how much the following statements reflect you from 0 (*not at all like me*) to 5 (*very much like me*).

Contingent Self-Esteem

1. It's hard for me to feel good about myself unless I know other people like me.
2. It's hard to feel good about myself unless I know other people admire me.
3. When others don't notice me, I start to feel worthless.
4. When people don't notice me, I start to feel bad about myself.
5. I am disappointed when people don't notice me.
6. I need others to acknowledge me.
7. When others don't respond to me the way I would like them to, it is hard for me to still feel okay with myself.
8. I am preoccupied with thoughts and concerns that most people are not interested in me.
9. I sometimes need important others in my life to reassure e of my self-worth.
10. I often find myself envying others' accomplishments.
11. It's hard to feel good about myself when I'm alone.
12. My self-esteem fluctuates a lot.

Hiding the Self

13. When others get a glimpse of my needs, I feel anxious and ashamed.

14. I often hide my needs for fear that others will see me as needy and dependent.
15. It's hard to show others the weakness I feel inside.
16. I can't stand relying on other people because it makes me feel weak.
17. It's important to show people I can do it on my own, even if I have some doubts inside.
18. I hate asking for help.
19. I wouldn't disclose all my intimate thoughts and feelings to someone I didn't admire.

Devaluing

20. When others don't meet my expectations, I often feel ashamed about what I wanted.
21. Sometimes I avoid people because I'm concerned they won't acknowledge what I do for them.
22. When others disappoint me, I often get angry at myself.
23. Sometimes I avoid people because I'm concerned that they'll disappoint me.
24. Sometimes I avoid people because I'm afraid they won't do what I want them to.
25. I sometimes feel ashamed about my expectations of others when they disappoint me.
26. Sometimes it's easier to be alone than to face not getting everything I want from other people.

Note. Scores are summed. Higher scores indicate higher levels of vulnerable narcissism.

Appendix B4

Revised Self-Monitoring Scale (Lennox & Wolfe, 1984)

Directions: Please indicate how much the following statements reflect you. From 0 (*certainly always false*) to 5 (*certainly always true*).

Ability to modify self-presentation

1. In social situations, I have the ability to alter my behaviour if I feel that something else is called for.
2. I have the ability to control the way I come across to people, depending on the impression I wish to give to them.
3. When I feel that the image I am portraying isn't working, I can readily change it to something that does.
4. I have trouble changing my behaviour to suit different people and different situations. *
5. I have found that I can adjust my behaviour to meet the requirements of any situations I find myself in.
6. Even when it might be to my advantage, I have difficulty putting up a good front. *
7. Once I know what the situation calls for, it's easy for me to regulate my actions.

Sensitivity to expressive behaviour of others

8. I am often able to read people's true emotions correctly through their eyes.
9. In conversations, I am sensitive to even the slightest change in the facial expression of the person I am conversing with.

10. My powers of intuition are quite good when it comes to understanding others' emotions and motives.
11. I can usually tell when others consider a joke in bad taste, even though they may laugh convincingly.
12. I can usually tell when I've said something inappropriate by reading the listener's eyes.
13. If someone is lying to me, I usually know it at once from the person's manner of expression.

Note. Items marked * are reversed scored. Total scores are derived by summing each scale item. High scores indicate higher levels of self-monitoring.

Appendix B5

Empathetic Concern and Perspective Taking Subscales from the Interpersonal Reactivity Scale (IRS; (Davis, 1983).

Directions: Please indicate the extent that each statement describes you from 0 (*does not describe me well*) to 4 (*describes me very well*).

Empathetic Concern

1. When I see someone being taken advantage of, I feel kind of protective towards them.
2. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. *
3. I often have tender, concerned feelings for people less fortunate than me.
4. I would describe myself as a pretty soft-hearted person.
5. Sometimes I don't feel sorry for other people when they are having problems.*
6. Other people's misfortunes do not usually disturb me a great deal.*
7. I am often quite touched by things that I see happen.

Perspective Taking

8. Before criticising someone, I try to imagine how I would feel if I was in their place.
9. If I'm sure I'm right about something, I don't waste much time listening to other peoples arguments.*
10. I sometimes try to understand my friends better by imagining how things look from their perspective.
11. I believe that there are two sides to every question and try to look at both of them.

12. I sometimes find it difficult to see things from the other person's point of view.*
13. I try to look at everybody's side of a disagreement before I make a decision.
14. When I'm upset at someone, I usually try to "put myself in their shoes" for a while.

Note. Items marked * are reversed scored. Total scores are derived by summing each scale item. Higher scores indicate higher levels of empathic concern and perspective taking.

Appendix A13

Stimuli for Response Task

Positive Stimuli

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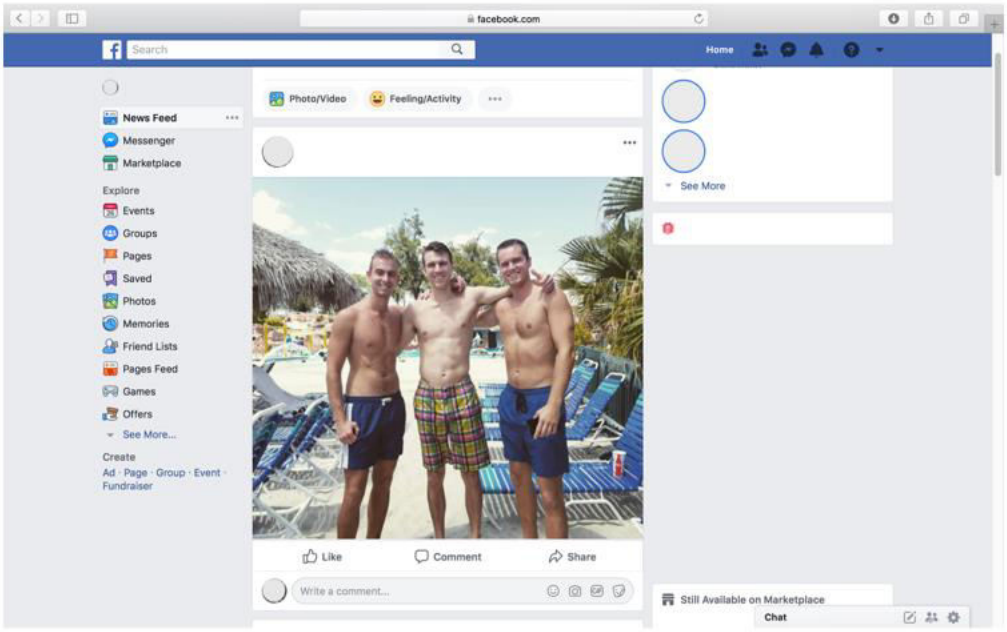

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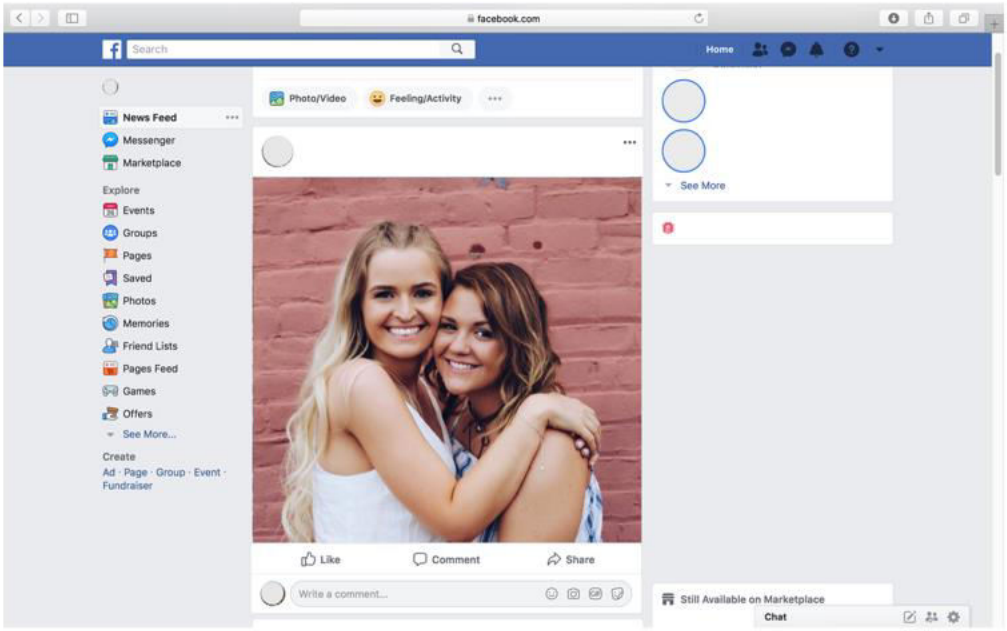

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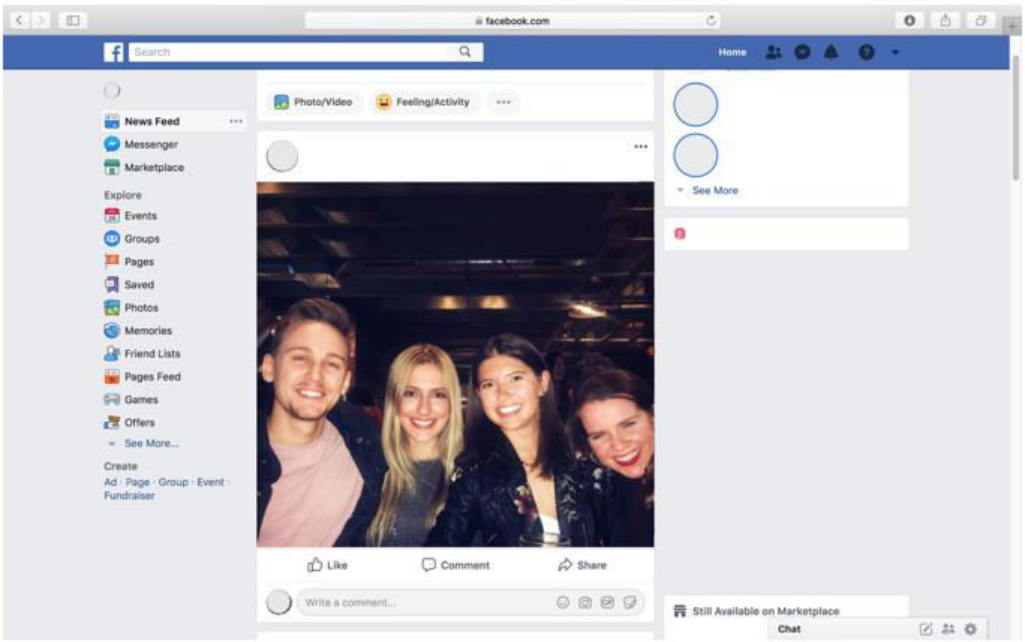
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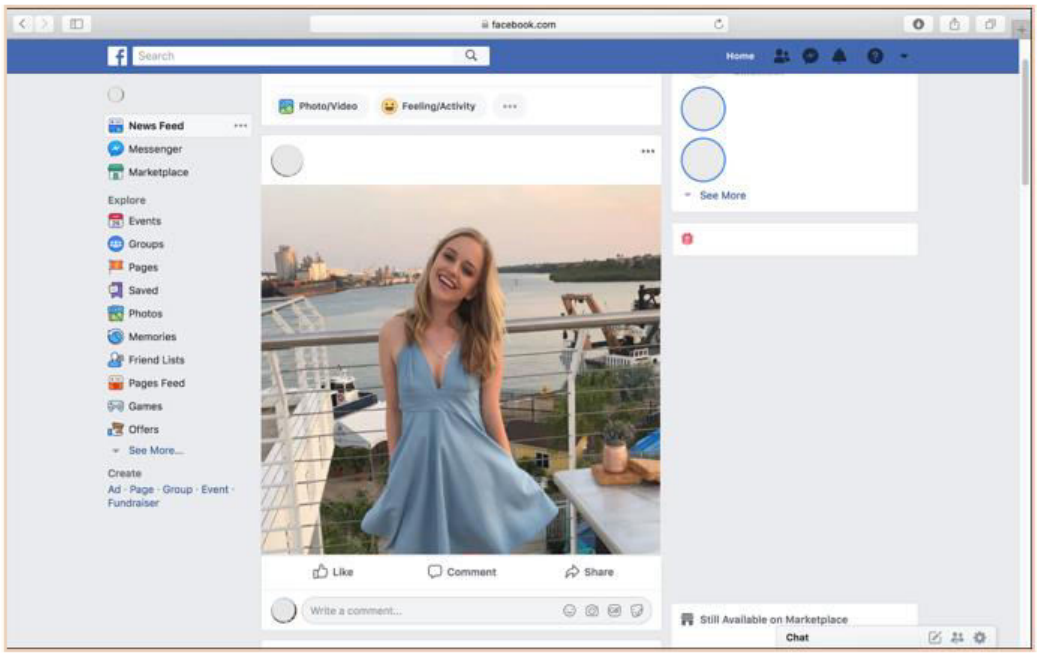
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Neutral Stimuli

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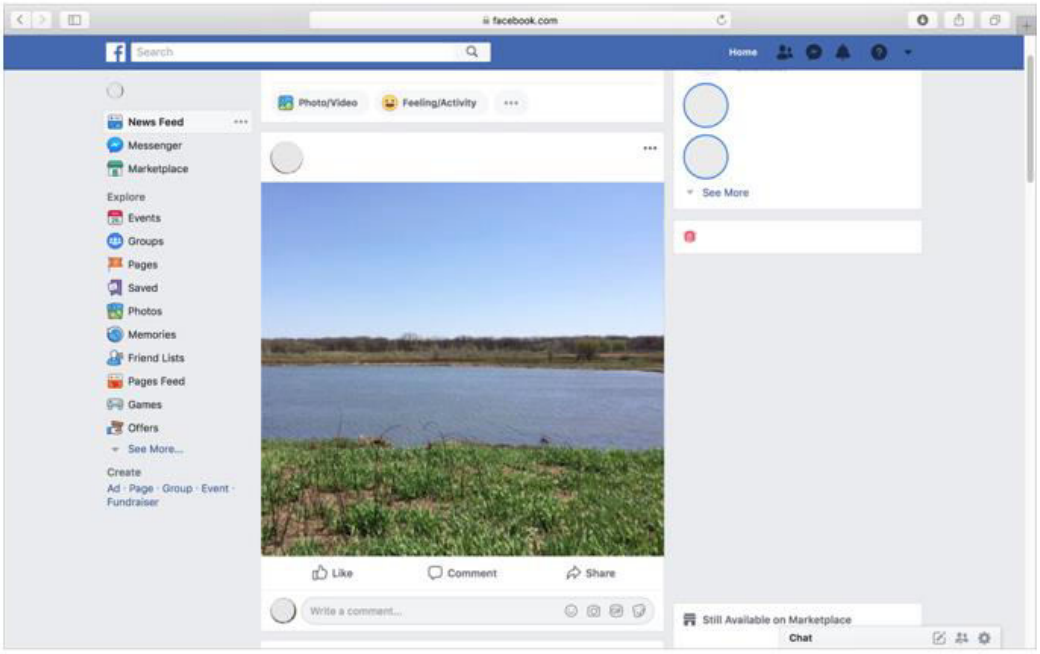

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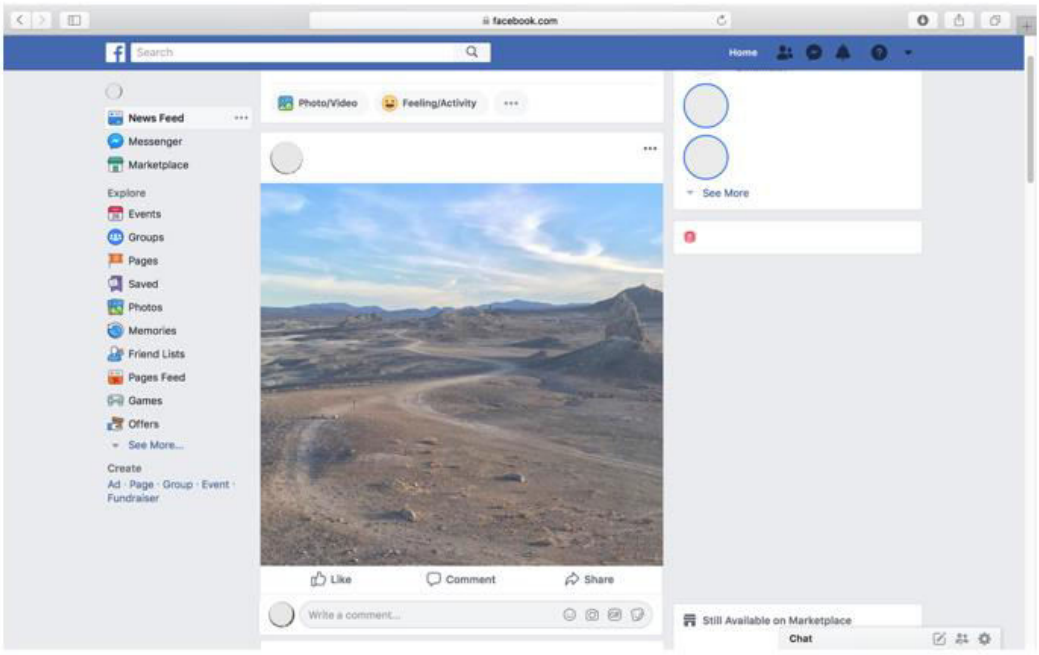

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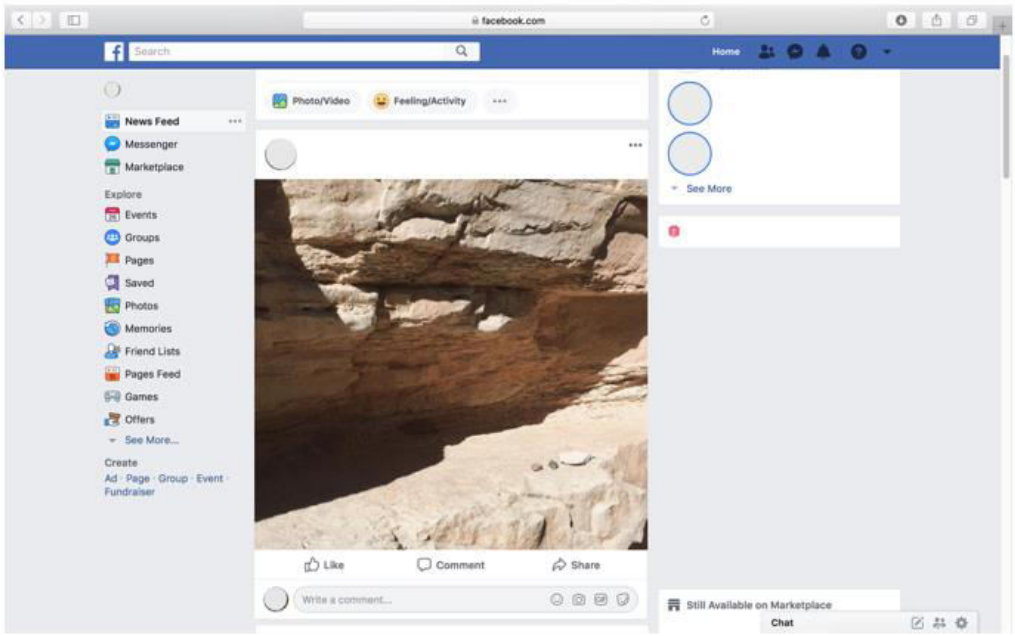
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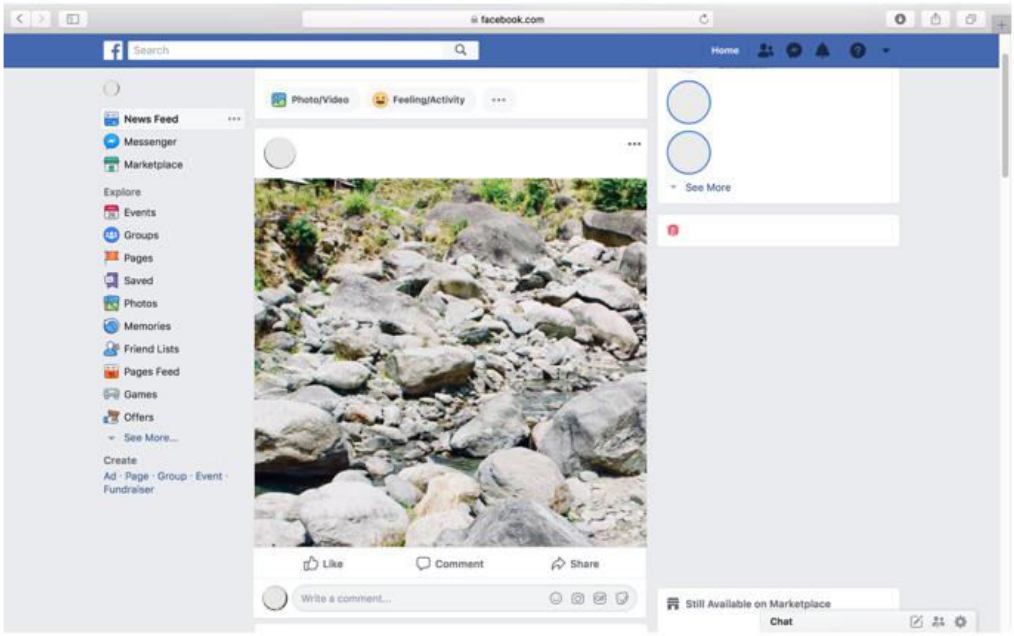
4.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Create
Ad · Page · Group · Event · Fundraiser
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Like
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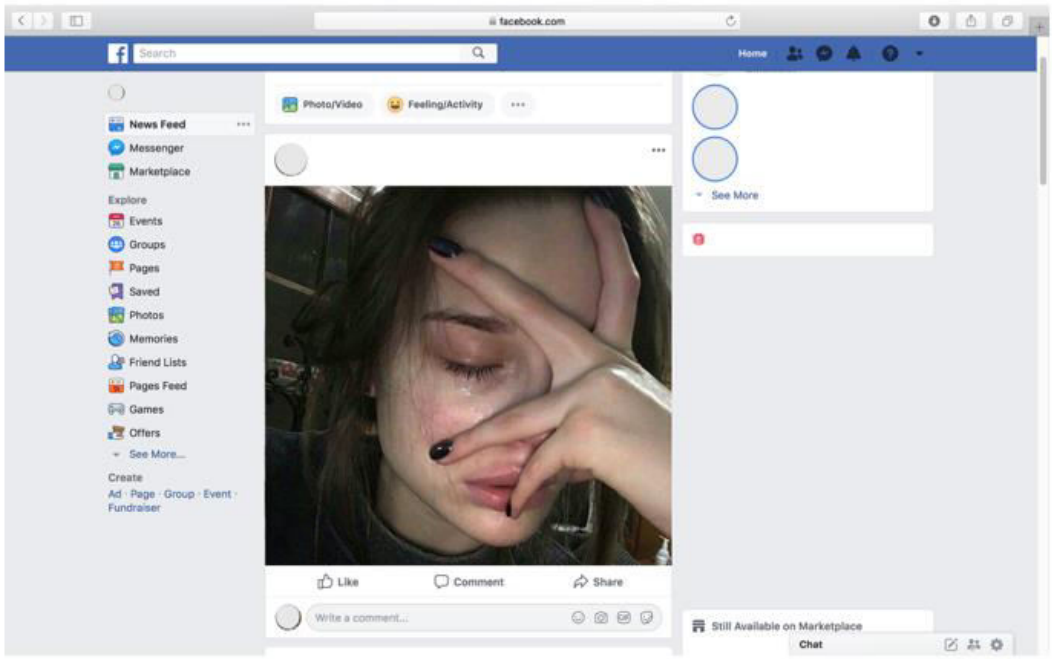
Negative Stimuli

1.



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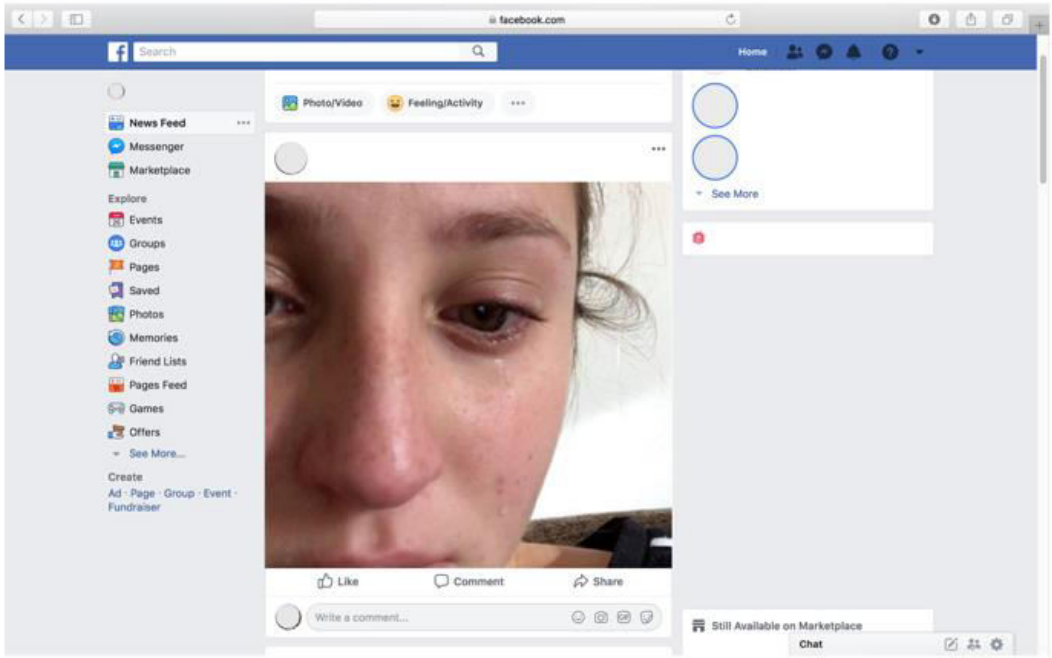

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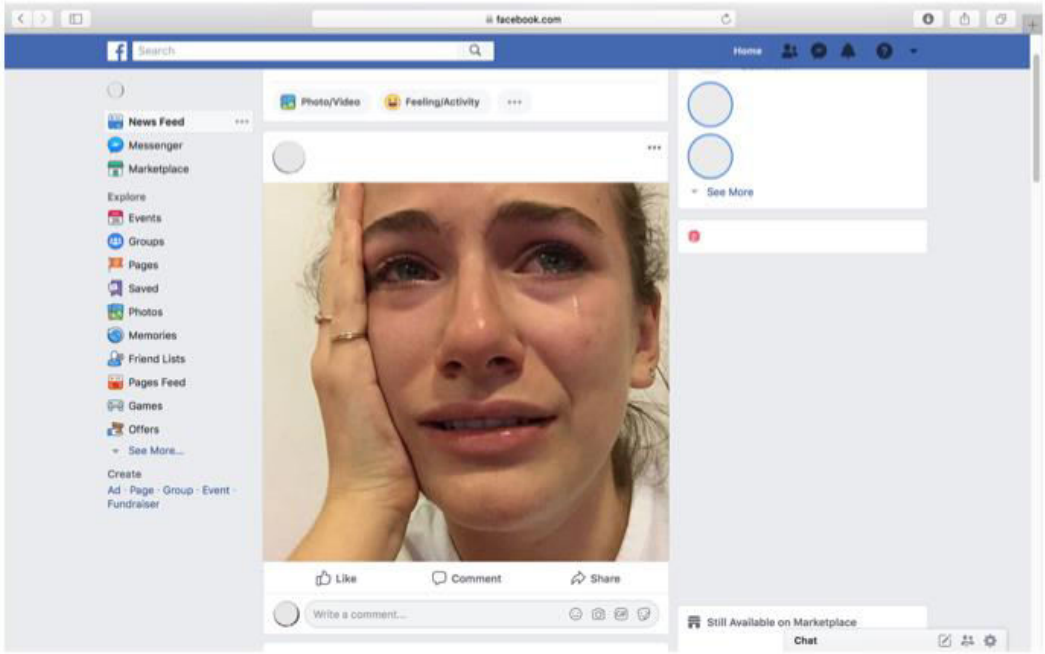
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See More
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Share
Write a comment...
Still Available on Marketplace
Chat

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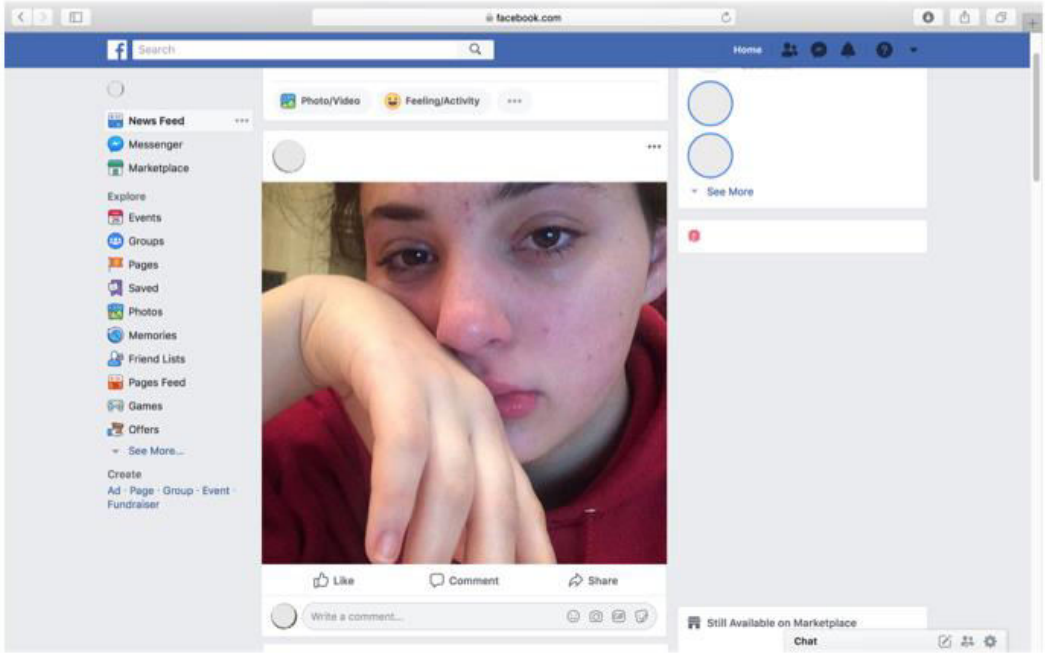
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See More...
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Ad · Page · Group · Event · Fundraiser
Photo/Video
Feeling/Activity
See More
Like
Comment
Share
Write a comment...
Still Available on Marketplace
Chat

Appendix B7

Adapted PDA Items

Directions: Please indicate how much you agree with each of the following statements. 1 (*disagree strongly*); 2 (*disagree*); 3 (*neither agree nor disagree*); 4 (*agree*); 5(*agree strongly*).

Assertive Self-Presentation Tactics

1. I give likes/reactions on Facebook in order to actively promote myself.
2. I feel confident in myself when I give likes/reactions on Facebook.
3. When I give someone a like/reaction and they do not give a like/reaction in return I know how to put them in their place.

Defensive Self-Presentation Tactics

4. I give likes/reactions on Facebook to ensure people don't think any less of me.
5. I worry about what others think of me when I give likes/reactions.
6. I would never admit to others that I don't feel confident in myself when giving likes/reactions on Facebook.

Attention to Consequences

7. Before giving a like/reaction to a post on Facebook, I consider the consequences that the like/reaction may have on the person who posted it.
8. Before giving a like/reaction to a post on Facebook, I consider who will see my response.
9. Before giving a like/reaction to a post on Facebook, I consider the consequences that the like/reaction may have on my own reputation.

10. Before giving a like/reaction to a post on Facebook, I consider the consequences that the like/reaction will have on the reputation of the person who posted it.
11. Before giving a like/reaction to a post on Facebook, I consider the consequences that the like/reaction may have if people see it in the future.

Emotional Consideration

12. Before giving a like/reaction to a post on Facebook, I consider how my like/reaction will make the person who posted it feel.

Note. Total scores are obtained by summing the items in each subscale. Higher subscale scores indicate higher levels of assertive PDA use, defensive PDA use, consideration of consequences associated with PDA and empathy.

Appendix C1

Recruitment PowerPoint Slide

Appendix C2

Recruitment Flyer

August 2018

Do you use facebook?

We would like to know how people use Facebook Reactions

The study will involve completing an online questionnaire and reacting to fictitious Facebook posts, which should take around 50-55 minutes. If you are interested in participating, or would like further information about the study, please follow the link below:
https://www.surveymonkey.com/r/FacebookReactionsStudyWebpage

You can participate if you:
Are over 18 years of age
Are a Facebook user
Did not complete 'Pilot Study: Facebook Images'

Completing the study gives you the chance of **winning one of six $50 Coles/Myer gift vouchers**, OR **60 minutes of research participation** for first year psychology students

The study will be conducted as part of an Honours project, supervised by Dr. Rachel Grieve.
If you have any further questions about this research, please contact Linda Fish (lfish@utas.edu.au)

Ethics Approval Number: H0017375

https://www.surveymonkey.com/r/FacebookReactionsStudyWebpag
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Appendix C3

Social Media Advertising

AUG
29

UTAS Facebook Reactions Online Study

Public · Hosted by UTAS Social Media Research

Interested | Going... | Share | ...

Every Wednesday, until Sep 26

AUG 29 Wed 12:00 PM | SEP 5 Wed 12:00 PM | SEP 12 Wed 12:00 PM | +2

https://www.surveymonkey.com/r/Face... Show Map

Hosted by UTAS Social Media Research
Typically replies within an hour
Message Host

About | Discussion

Details

You are invited to participate in an anonymous online study examining how personality may be related to the use of Facebook Reactions.

This study is being conducted by researchers at the University of Tasmania and takes between 50 and 55 minutes to complete.

On completion of the survey, you can go into the draw to receive one of six $50 Coles/Myer gift vouchers (OR if you are a first-year psychology student at the University of Tasmania, you can choose between going into the running to receive a voucher or 60 minutes of course credit).

For more information, and to complete the survey, please follow this link:

https://www.surveymonkey.com/r/FacebookReactionsStudyWebpage

See Less

Appendix C4

Main Study Participant Information Sheet and Online Consent

Invitation

You are invited to participate in an anonymous study examining whether personality affects the use of reactions on Facebook. This study is being conducted as partial fulfilment of an Honours degree for student Linda Fish, under supervision of Dr. Rachel Grieve, in the School of Medicine (Psychology) at the University of Tasmania.

What is the purpose of this study?

Social networking sites have become an important part of our everyday lives and an essential tool for self-presentation. The like/reaction buttons on Facebook is one feature that can be used for self-presentation. The purpose of this study is to examine whether personality influences the use of Facebook reactions.

Why have I been invited to participate?

In order to participate in this study, you need to be over the age of 18 and be a Facebook user. Your participation in this study is voluntary. There will be no consequences for individuals who do not wish to participate in this study.

If you choose to participate in this anonymous online study, you will be asked to complete a questionnaire and use likes/reactions to respond to fictitious Facebook posts. For example, you will be asked to indicate how much you agree with statements such as *"How often do you use Facebook?"; "People see me as a natural*

leader" and *"I have been compared to famous people"*. The study will take approximately 45 minutes to complete. All responses that you provide will be completely anonymous and no information that could identify you will be collected as part of the study.

Are there any possible benefits from participation in this study?

It is not anticipated that taking part in this study will result in any direct benefits to participants. However, first year students studying Psychology at the University of Tasmania will be eligible to receive 45 minutes of research participation credit for their participation in this study via SONA. Participants from the general public (and any students who choose not to receive research credit) will have the chance to receive one of six $50 gift vouchers (please note: at the end of this study you will be asked to follow a separate secure link to provide your details to receive research credit, or to go into the draw to receive the gift voucher. There will be no way to link your survey answers with your identity, thus participation is entirely anonymous).

Are there any possible risks from participation in this study?

There are no specific risks anticipated with participation in this study. However, if UTAS students participating in this study would like to access counselling services, they can do so by following this link: http://www.utas.edu.au/students /counselling/personal-counselling. Participants from the general public should contact their GP, or Lifeline on 13 11 14.

What if I change my mind during or after the study?

Your participation in this study is voluntary. You may choose to not participate at any time without providing an explanation, simply by closing the web page. All information you have provided to that point will remain anonymous. If you withdraw from the study after completing the questionnaires, it will not be possible to identify your data in order to remove it, as participation is anonymous.

8. What will happen to the information when this study is over?

Data will be collected using a secure online service, and will be stored on a password-protected server in the UTAS Psychology Division. The data will be kept for a minimum of 5 years from the date of first publication. Following this, data will be deleted.

9. How will the results of this study be published?

Relevant findings from this study will be reported in an Honours Thesis, and may also be reported in an academic journal, or at an academic conference. As participation is anonymous, no participants will be identified in any publication.

10. What if I have questions about this study?

For further information please contact Linda Fish (lfish@utas.edu.au) or Dr. Rachel Grieve (rachel.grieve@utas.edu.au).

This study has been approved by the Tasmanian Social Sciences Human Research Ethics Committee. If you have concerns or complaints about the conduct of this study, please contact the Executive Officer of the HREC (Tasmania) Network on (03) 6226 7479 or email human.ethics@utas.edu.au . The Executive Officer is the

person nominated to receive complaints from research participants. Please quote ethics reference number [H0017375].

Thank you for considering participation in this study.

If you have read and understood all of the above information, and you consent to take part in this study, please click ‘Yes’. If you do not consent to take part in this study, please click ‘No’ and you will be exited from the survey.